

JULY
(JULY-AUGUST)
1946

CHEMICAL PREVIEW

NEW

- ★ **PROCESSES**
- ★ **MATERIALS**
- ★ **MACHINERY**
- ★ **PRODUCTS**
- ★ **APPLICATIONS**



Latest developments in chemical
process manufacturing...for engi-
neers, chemists and executives.

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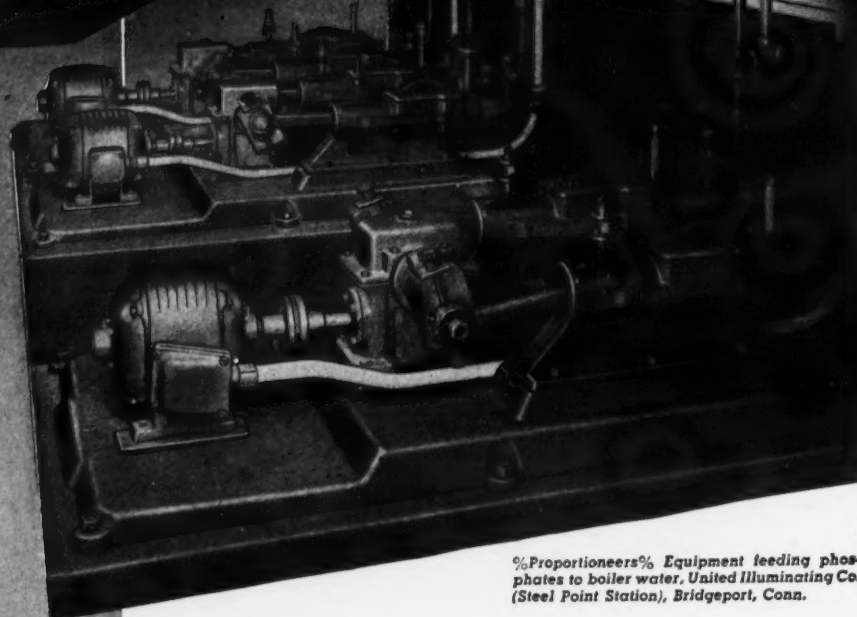
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CCA



Fluid pilot "Cat Cracker" produces
low as 1700 bbls. daily. Has same
operating principle as large units.

Continuous AUTOMATIC BOILER WATER CONDITIONING



%Proportioneers% Equipment feeding phosphates to boiler water, United Illuminating Co. (Steel Point Station), Bridgeport, Conn.

EVERYTHING YOU NEED
TO LAY OUT AND SPECIFY
THAT BOILER WATER CONDITIONING
INSTALLATION



An adequate and regular method of injecting boiler water conditioning chemicals is a requisite in the modern power plant to prolong the life of its equipment, operate boilers at top efficiency with minimum fuel and avoid costly shutdowns for repairs and cleaning. The %Proportioneers% system adds the proper treating chemical, in the correct proportion at the right time.

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Technical service representatives in principal cities of the United States, Canada and Mexico.

That's Interesting

Amine Boils at 83.7° C.

Diisopropylamine is a new amine which boils at 83.7° C. and for this reason can be used more conveniently and with less loss of material than is the case when lower secondary amines are employed. It has a freezing point of below -60° C., is partially miscible with water and completely miscible with most organic solvents. It undergoes the usual reactions of a secondary amine. It is of interest as a starting material in the synthesis of a variety of products such as textile specialities, detergents, inhibitors, dyes and pharmaceuticals. (Commercial Solvents Corp., New York.)

Soap Bubbles

Soap bubbles, current fad of children, have their scientific applications in solving many intricate engineering problems and those involving combustion and airplane beam investigations. Glycerine makes a major contribution in obtaining solutions that are especially well suited for such use. (Glycerine Producer's Assn., 11 West 42nd St., New York.)

Radiators in Ceiling

Homes recently constructed in a new housing project in Portland, Oregon, have the radiators in the ceiling. These homes are heated by electricity, the heating elements being buried in the plaster. By this method the same degree of comfort with a low temperature is achieved that one gets with a higher temperature using conventional methods of heating; where the heat is concentrated. Since the heat is uniformly distributed over the room, drafts are kept at a minimum. (As reported in the Driver-Harris Co.-Alloy Craftsman.)

New Design Completely Encloses Large Motors

Overall re-designs of the ventilation heat-transfer system distinguishes a new line of outdoor weatherproof totally enclosed motors in large sizes ranging to over 2000 horsepower. Designed with normal torque and normal starting current, these motors are expected to find wide application in central power plant service and the chemical industry as well as general industrial uses. (Allis-Chalmers, Milwaukee.)

Plastic Woven Insole Aids Foot Ailments

The washable shoe ventilator, known to the GIs as "innersole plastic, ventilating type, fused," is now being made available in limited quantities to safety departments for issue to workmen under treatment for athlete's foot. It is not medicated, its function being purely mechanical. Each step the wearer takes pumps air into the shoes, circulates it over the grid of woven plastic, evaporates moisture from the plastic surface and expels the moisture laden air. (Dale Vent-O-Sole, Inc., 60 E. 42nd St., New York.)

(Continued on next page)

For more information on product at left, specify CP A4785
... see information request
blank between pages 2-3.

Check Below For Product Information

JULY-AUGUST, 1946

EVERY PRODUCT DESCRIBED IN THIS ISSUE IS LISTED ON THIS SHEET. Check items that interest you, fill in your name and address on reverse side and mail to publisher. Information comes to you direct, without obligation.

✓ Key	Product	✓ Key	Product	✓ Key	Product	✓ Key	Product
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<input type="checkbox"/>	A4786 Process Equipment	<input type="checkbox"/>	A4846 Control Valve Catalog	<input type="checkbox"/>	A4907 Recorder-Controller	<input type="checkbox"/>	A4970 Syntergent K
<input type="checkbox"/>	A4787 Pilot Plant Kettles	<input type="checkbox"/>	A4847 Temperature Regulator	<input type="checkbox"/>	A4908 Die Stock	<input type="checkbox"/>	A4971a Butyl Perbenzoate
<input type="checkbox"/>	A4788 Anchor Fast Nails	<input type="checkbox"/>	A4848a Pressure Gauges	<input type="checkbox"/>	A4909 Emulsifiers	<input type="checkbox"/>	A4971b Butyl Hydroperoxide
<input type="checkbox"/>	A4789 Steam-Jet Ejectors	<input type="checkbox"/>	A4848b Dial Thermometers	<input type="checkbox"/>	A4910 Fatty Acid Derivatives	<input type="checkbox"/>	A4972 Kettles
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		<input type="checkbox"/>		<input type="checkbox"/>	A4968 Mixer Type Kettles		

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<input type="checkbox"/>	A5076 Cathodic Rust Prevention	<input type="checkbox"/>	A5130 Pulverizers	<input type="checkbox"/>	A5183 Rotary Disc Vacuum Filter	<input type="checkbox"/>	A5233c Mixers
<input type="checkbox"/>	A5077 Rectifiers	<input type="checkbox"/>	A5131 Pipe Vise	<input type="checkbox"/>	A5184 Nickel Base Alloys	<input type="checkbox"/>	A5233d Vibrating Sifters
<input type="checkbox"/>	A5078 Flame Hardening Apparatus	<input type="checkbox"/>	A5132 Fire Extinguisher	<input type="checkbox"/>	A5185 Fire Protection Equipment	<input type="checkbox"/>	A5234 Electronic Dust Control
<input type="checkbox"/>	A5079 Ring Packing	<input type="checkbox"/>	A5133 Strainers	<input type="checkbox"/>	A5186 Industrial Ovens	<input type="checkbox"/>	A5235 Industrial Trucks
<input type="checkbox"/>	A5080 Steel Valves	<input type="checkbox"/>	A5134 Lifting Machine	<input type="checkbox"/>	A5187 Boilers	<input type="checkbox"/>	A5236 Magnetic Separator
<input type="checkbox"/>	A5081 Spray Booth Compound	<input type="checkbox"/>	A5035 Flexible Metal Hose	<input type="checkbox"/>	A5188 Colony Counter	<input type="checkbox"/>	A5237 Floor Patch
<input type="checkbox"/>	A5082 Water Storage Heaters	<input type="checkbox"/>	A5136 Electric Heaters	<input type="checkbox"/>	A5189 Motor Drives	<input type="checkbox"/>	4th Cover
<input type="checkbox"/>	A5083 Bolders						Processing Equipment

Your Name Your Title

Your Firm (Please give the firm name)

Your Street Address

Your City Zone State

Fill in and mail this form to **CHEMICAL PREVIEW, 737 N. Michigan Ave., Chicago 11, Illinois**

"That's Interesting"

Two Dimensional Circuits of Printed Wire

Printed wire, the new development that reduces the wiring of radio circuits to a two dimensional lithograph process, is a new technique in the radio and products industry. These printed circuits were used in the proximity fuse to reduce an intricately-wired radio mechanism to a size small enough to fit on the end of a bomb or shell. Developed by Globe-Union, Inc., Milwaukee, the new process uses a stencil placed on a ceramic plate to lithograph the wiring circuit. A silver ink, a solution of fine silver oxide, is painted on the plate by a roller going over the stencil. The hardened silver produces a silver wiring circuit instead of the usual copper wires. Resistors are painted in over another stencil, with a solution of carbon, and the radio circuit comes out minus its third dimension, with the complicated wiring simply a series of lines on the plate. Midget tubes, such as are produced for hearing aids can be fitted on printed wiring circuits for more important instruments than match box size receivers. (As reported in Aminco Laboratory News.)

Substitute for Pollen

When sulfathiazole is mixed with skimmed milk and soybean flour as a substitute for pollen, beekeepers find it helps prevent the spread of American foulbrood, most disastrous of beehive diseases. (Staley Information Service — Decatur, Ill.).

Rugs Made of Plastic Coated Fiber Twine

Fiber paper rugs may soon be decorating the floors of homes and offices. They will offer improved resistance to water, wear, skidding, mildew and fading. The improved properties are brought about through the coating of paper twine with vinyl butyral, a flexible plastic. It will be possible to clean them with a damp cloth. For decorative effects, weavers will be able to rely on the relatively fugitive colors in the base paper and on pigments permanently imbedded in the plastic. Design possibilities appear to be unlimited. The rugs are woven on standard mill equipment. Other possible applications of the plastic coated paper twine include shopping bags, shoe uppers and auto seat covers. (Monsanto Chemical Co., St. Louis, Mo.).

New Lithium Products

New uses for compounds of lithium are now available to industry. Three products new to industry. One is lithium peroxide, a solid possessing high stability and providing approximately 35 percent free oxygen by weight. A second is lithium borohydride, a solid stable in dry air, which generates 66 cubic feet of hydrogen per pound, in contact with water. A third is Diborane, a gas at 100m temperature which liberates 78 cubic feet of hydrogen per pound when in contact with water. (Lithaloy Corp.).

(Continued on inside back cover)

For more information on product at right, specify CP A4787 . . . see information request blank between pages 2-3.

PFAUDLER PILOT PLANT KETTLES ANSWER SUCH QUESTIONS AS THESE

At what temperature is yield at a maximum?
What is the effect of pressure on yield and reaction time?
What is the most economical batch?
What is the optimum agitator speed?

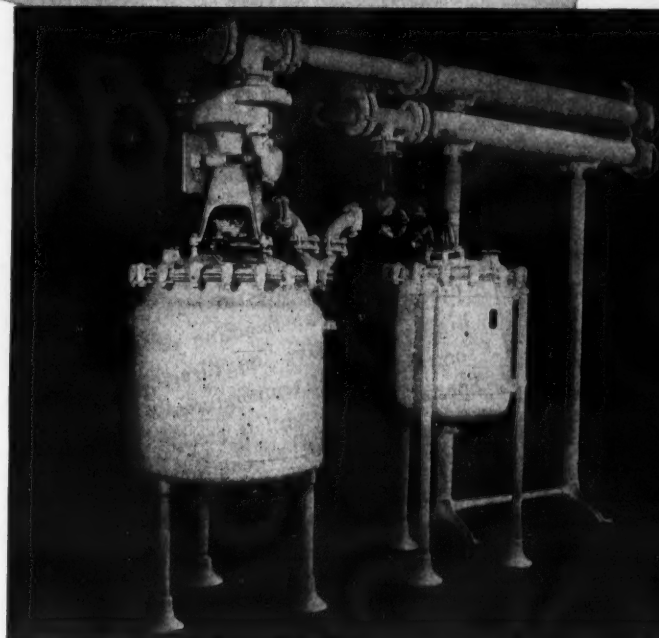
It is an axiom of the Chemical Industry to "make all your mistakes on a small scale and all your profits on large scale." Safe procedure calls for one more step, the pilot plant. Standard Pfaudler acid-resisting glass-lined steel pilot plant kettles are made exactly for this purpose.

You transfer operations from glass flask and beaker to glass-lined steel. You simulate exact conditions for both the laboratory and the factory. You get the answers to questions like those indicated above at small cost before transferring operations to full-scale production.

These units also have proved invaluable where small quantities of rare or expensive products are involved. In such cases, they are used as production units on a permanent basis . . . with safety and efficiency.

CAPACITY RANGE GIVES YOU WIDE SELECTION

There are 24 Pfaudler Pilot Plant Kettle combinations. All units are resistant to all acids (except H.F.) at elevated temperatures and pressures. With capacities of 5, 10, 20, 30, 50, and 100 gallons, any kettle is available with or without steam jacket, top-head, agitator and motor drive. You can select the right combination for your particular requirements. Such flexibility is basic with standard Pfaudler glass-lined process equipment. You get the benefit of reduced cost, at the same time securing almost a custom-built job. May we send you further information?



This standard Pfaudler Pilot Plant Assembly consists of a 50-gallon glass-lined steel-jacketed still, a glass-lined steel return bend condenser, a 30-gallon glass-lined steel receiver, all connected with standard glass-lined pipe, fittings and valves.

THE PFAUDLER CO., Rochester 4, N. Y. Branch Offices:
330 West 42nd St., New York 18, N. Y.; 111 W. Washington Ave., Chicago 2, Ill.; 1325 Howard St., San Francisco 3, Calif.; 455 Paul Brown Bldg., St. Louis 1, Mo.; 7310 Woodward Ave., Detroit 2, Mich.; 1318 1st Nat'l Bank Bldg., Cincinnati 2, O.; 1228 Commercial Trs. Bldg., Philadelphia 2, Pa.; 751 Little Bldg., Boston 16, Mass.; 1034 Washington Bldg., Washington 5, D. C.; Box 982, Chattanooga 1, Tenn.; Enamelled Metal Products Corp., Ltd., Artillery House, Artillery Row, London, S. W. 1, England.

Pfaudler



THE PFAUDLER CO., ROCHESTER 4, NEW YORK
ENGINEERS AND FABRICATORS OF CORROSION RESISTANT PROCESS EQUIPMENT
Glass-Lined Steel . . . Stainless Steels . . . Nickel . . . Inconel . . . Monel Metal

DRIVES
like a NAIL... **HOLDS**
like a SCREW



There's amazing holding power in the Monel* **ANCHORFAST** Nail.

Those "threads" you see aren't threads at all—they're *grooves*. Drive the nail home, and dozens of broken wood fibres act as tiny wedges; they *lock* into the grooves.


Once in, Monel **ANCHORFAST** NAILS are in to stay! They resist corrosion. They can't rust. Their grooves never lose their grip.

Monel **ANCHORFAST** Nails are ideal for wood fastening where acids or alkalis are encountered. Use them on acid carboy crates, wooden storage tanks and processing tanks. Monel resists sulfuric acid, caustic soda, hydrochloric acid, hydrofluoric acid, brines, vinegar and food acids.

Test **ANCHORFAST**'S holding power!

Let us send you a sample of the MONEL **ANCHORFAST** Nail, together with a simple testing device that demonstrates the **EXTRA** grip it develops. No obligation. Write:

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67 Wall Street New York 5, N. Y.

NICKEL  **ALLOYS**

MONEL* "K" MONEL* "S" MONEL* "R" MONEL* "AR" MONEL* INCONEL* NICKEL "L" NICKEL "T" NICKEL*
*Reg. U. S. Pat. Off.

When inquiring specify CP A4788 — see handy form pages 2-3

STEAM-JET EJECTORS for Special Applications



The vacuum services in many processes require handling of highly corrosive mixtures, sometimes at high temperatures. Special jets of stainless steel, bronze, cast steel, Monel, or Karbate (as shown here) will meet your special applications. Ingersoll-Rand engineers can recommend the Steam-Jet Ejectors that will serve vacuum processes to the best advantage.

Ingersoll-Rand
11 Broadway, New York 4, N. Y.

4-832

When inquiring specify CP A4789 — see handy form pages 2-3

CHEMICAL PREVIEW

Edited for Production and Laboratory
Men in Food Manufacturing

VOL. 9

JULY-AUGUST, 1946

NO. 4

What's In This Issue

How To Get More Product Information	2-3
Cover Pictures	5
That's Interesting	2, 3, 135
New Solutions of Plant Problems	6
Control Instruments and Equipment	18
Materials — Production and Maintenance	44
Practical Ideas	64
New Literature — Catalogs and Books	78
Production Equipment	96
Product Directory	132
Advertisers In This Issue	134

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When inquiring specify CP A4791 — see handy form pages 2-3

MORE EFFICIENT HANDLING

from Unloading to
Shipping Platform!



In the large plant illustrated above a completely coordinated, plant-wide conveyor system — engineered and installed by Alvey-Ferguson — handles empty cases from the unloading platforms, to the storage and filling departments, then carries the filled cases to the shipping platforms. Production flows smoothly in an "endless stream," efficiency is increased and handling expense reduced to the minimum.



A-F Engineers, backed by forty-five years' experience, will help solve YOUR problems in handling materials and products. Write, without obligation, today.

THE ALVEY-FERGUSON CO. 16 Disney Street Cincinnati 9, Ohio



When inquiring specify CP A4790 — see handy form pages 2-3



Photos courtesy of Quaker City Cold Storage Co.

BIG BUILDINGS SAVE BIG SUMS WITH MICROMAX TEMPERATURE RECORDERS

The daily miles of walking required to read temperatures in big buildings shrinks to a few yards when Micromax instruments centralize the job of temperature recording. And not only is there this saving in time and effort, but temperature changes are reported more quickly and therefore corrected more promptly. This gives a substantial saving in power, plus a smoother temperature curve for each building area.

If you're interested in the *why* of Micromax's superior performance in this field, we'll send appropriate catalogs. Or, if you'll outline your particular problem, we'll send the recommendation of an L&N engineer.



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MEASURING INSTRUMENTS • TELEMETERS • AUTOMATIC CONTROLS • HEAT-HEATING EQUIPMENT

CHEMICAL PREVIEW JUL

The Cover

Pilot fluid "Cat Cracker" illustrated on the front cover permits large or small refineries to produce gasoline economically with this process. Unit operates on same principle as the large unit. Capacities down to 1700 barrels daily are handled. An article on this development appears on page 6.

How To Get More Product Information

To make it convenient for readers to locate information in **CHEMICAL PREVIEW** there is . . . on pages 132 and 133 . . . a complete directory of all products that are featured in editorial articles or described in the advertisements in this issue; On page 134 you will find a list of the advertisers whose products are described in this issue; And to make it easy for you to secure additional information quickly there is a handy request slip inserted between pages 2 and 3.

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Have You a New Product?

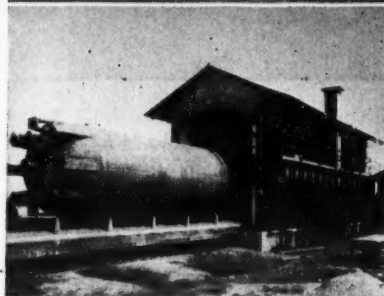
If you have recently developed a new or improved product, a piece of laboratory or plant equipment or a new material, of specific interest in any line of chemical process manufacturing . . . send information regarding it to our editors.

If it meets their requirements, they will introduce it to the chemical processing industries through the editorial pages of **CHEMICAL PREVIEW**. More than 25,000 copies of this publication are effectively distributed through the chemical processing industries.

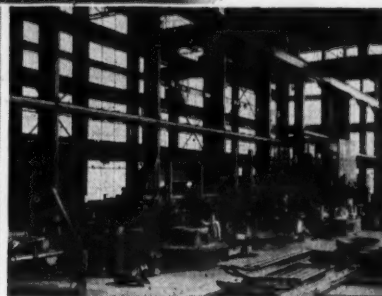
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PLATE-FABRICATING PLANTS**



Annealing Capacity for the Largest Vessels.



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equipment are built by expert fabricators in one of America's most up-to-date plants. Housed in spacious, well-lighted buildings, the plant includes completely-equipped machine shop, boiler shop, annealing ovens, and a modern X-ray testing laboratory for the application of ASME and API-ASME codes.

Devine facilities are at your service whether for the designing of equipment to fit special needs, or the fabricating of units from your own blueprints. A letter or telegram will bring a Devine representative.



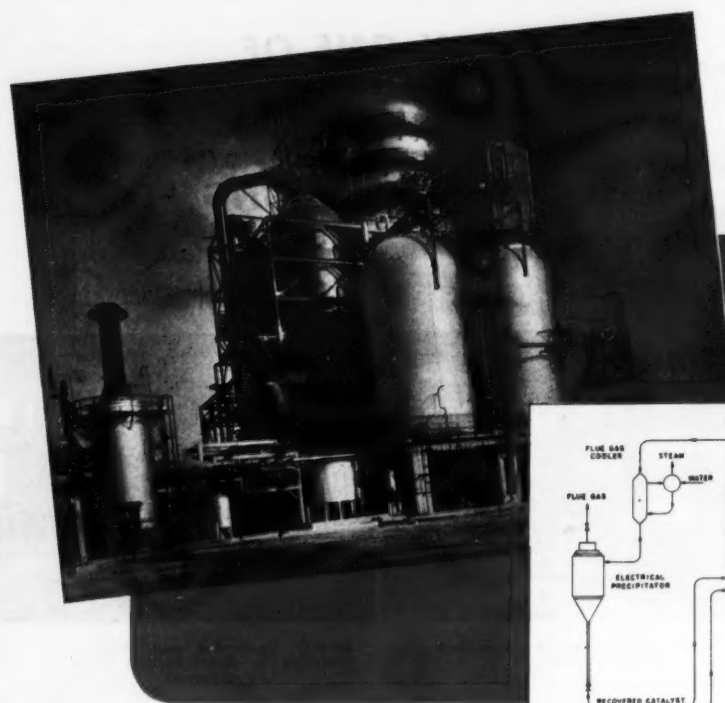
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—When inquiring specify CP A4792 . . . see information request blank, pgs. 2-3—

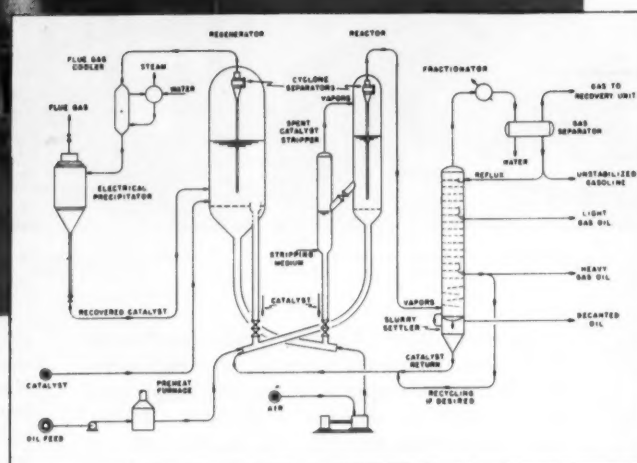
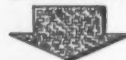
★ Fluid "Cat Cracker" Makes Small Operations Profitable

● Aluminum Construction Cuts Pallet Weight 64%



Fluid catalytic cracking plant processes 25,000 bbls. daily (80-85 octane) gasoline

New Solutions



Typical flow diagram of small fluid "Cat Cracker" capacity 4000 bbls. daily

★ Operates on same principle as large units. Produces gasoline at 5.29 cents per gal.

PROBLEM — the small capacity oil refinery faced a problem in competing with large operations with the development of fluid catalytic cracking.

Solution — With the development of this small "cat cracker" (capacity as low as 1700 bbls. daily) small operations may be carried on which incorporate fluid catalytic cracking methods to meet quality standards of large operations and still permit profitable operation.

Operational studies were carried on with the fluid pilot plant (picture on front cover) to show the economy of performance. Process fundamentals for this unit are the

same as for the large units which account for the success of the fluid process.

The accompanying diagram illustrates the latest design and embodies the experience gained in six years of fluid cracking. This diagram is typical for a 4,000 bbl. per day operation. Of decided interest is the fact that the main structure occupies only 1,650 sq. ft. Elevation has been reduced, reactor, regenerator and precipitator all supported on same elevation — only 69 ft. above ground. Other features of the unit include: (1) all vessels except the regenerator can be shop-fabricated (2) an improved piping design and special "sizing" of the major catalyst lines have eliminated the necessity for internally lined piping and have reduced erosion to a minimum (3) heat savings have been effected by re-routing piping; gas velocities have been reduced; precipitator equipment improved; and expansion and rotation joints eliminated. In setting up the requisite for maximum earning power, here is the manu-

facturer's outline of requirements: Units must:

1. Embody the fluid principle of powdered catalyst circulation.
2. Be capable of handling heavy oil fractions.
3. Should contain built-in flexibility to follow the market in octane requirements.
4. Have built-in versatility to handle any type of charging stock.
5. Be capable of using proven catalysts — natural and synthetic.
6. Be saving in operating costs.
7. Have adequate provision for conservation of the catalytically cracked products.
8. Prevent loss of catalyst in flue gas.
9. Remove catalyst completely from the product stream.
10. Permit long continuous operation.

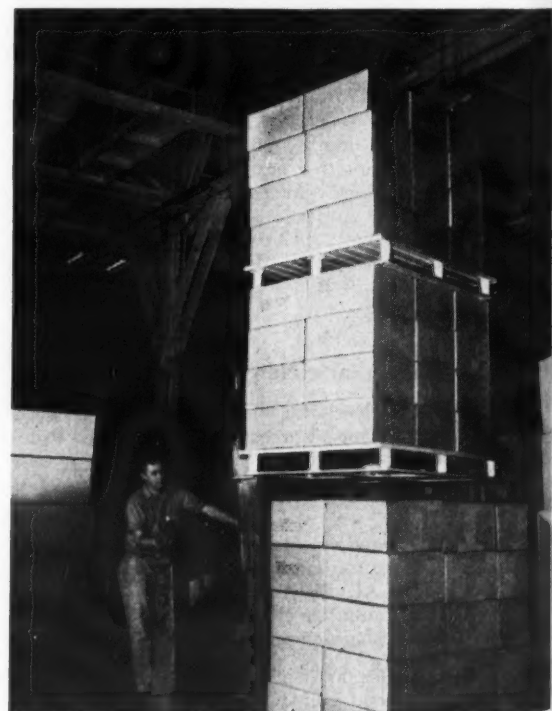
Complete details on the economical aspects of operating the small units are contained in Issue No. 2 of the KELLLOGG, 1946 series. Tabulated studies of a 4,500 bbl. per day unit and a 9,500 bbl. per day unit show respective manufacturing costs of 5.29 cents per gal. and 5.57 cents per gal. A summary of design fundamentals is also included. More details are available on request.

M. W. KELLLOGG CO., Dept. CP, 225 Broadway, New York 7, N. Y.

When inquiring specify CP A4793 — see handy form pages 2-3

Great savings secured in pallet shipment of light weight foods and return of pallets to plant

PROBLEM — The reduction in actual pallet weight is an important matter, especially in its relation to palletizing freight shipment of light weight products. At the present time, all pallets take the same freight rate as the goods they carry. However, regardless of the weight of the goods carried, lighter pallet weight and improved construction are to be considered in utilizing unit load move-



Double pallet loads save time and labor

CHEMICAL PREVIEW JUL



Pallet combines light weight, durability

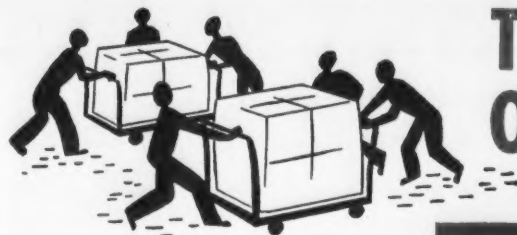
ment of goods on pallets to the fullest advantage. Efficient handling is achieved when the goods stay on the same pallet throughout all movements from end of production line in plant to temporary storage, then to shipping platform, through loading of freight car, freight car movement to warehouse and subsequent movements from warehouse. Lighter pallet weight is therefore to be desired as a savings in original shipments and in return shipment of pallets to plant.

Solution — Aluminum pallets which cut average pallet weight by two-thirds, are extending the applications of palletized shipments to light weight products. A 40" x 48" aluminum pallet weighs 36 pounds compared to about 100 pounds for the same size made of other materials. Made of newly developed high strength aluminum alloys, these pallets have withstood loads up to 26,000 pounds without damage. An important advantage of aluminum is that it imparts no odors and absorbs none. Thus, pallets may be loaded without discrimination as to subsequent or previous loads. There are no hazards from splinters or sharp edges, even when worn. Their non-sparking, non-combustible properties contribute to safety.

These aluminum pallets are designed so that the forks of the truck may enter the pallet from any one of the four sides or any of the four corners. This added feature means such a pallet may be set down from one direction and picked up from another. Less space is required for maneuvering truck since it need only make a 45° turn from an aisle to enter the pallet from the corner. Steel straps can be used lengthwise as well as crosswise on such pallets providing stronger loads.

To illustrate savings: Sending certain palletized goods over a typical rail movement costs 1c a pound. Savings on outgoing shipment with aluminum pallets is 64c per pallet. Return shipment of pallets at rate of \$0.36 per 100 pounds provides the following comparison. Wood pallet (100 pounds) 36c — aluminum — 16c per pallet. Complete information on aluminum pallets in the various standard deck sizes — 40 x 48; 48 x 48; 32 x 40; 42 x 50 — on request.

REYNOLDS METALS CO., (Aluminum Div.) Dept. CP, 2500 South 3rd St., Louisville, Ky.



TAKE A LOAD OFF THEIR BACKS

PUT IT ON *His Fingertips*
WITH THE MOTORIZED
HydroElectric



ONLY THE HYDROELECTRIC OFFERS SO MUCH

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- 4 Wheels for Stability.
- Costs only 1/3 and weighs only 1/3 of other powered TRUCKS of equal capacity.
- Records up to 21 years of 8 hour day performance.
- Engineered by the Stuebing, Pioneers in Lift Truck Construction Since 1910. Patented.

THE HYDROMATIC THE RED ARROW



Easy single or multi-stroke hand lift trucks. Capacities up to 8000 lbs. Users state they pay for themselves 5 to 10 times yearly.

Why use four men to do the same job one can handle just as easily? Prominent fleet users report their HydroElectrics save up to 75% on handling costs — pay for themselves several times in one year.

And this amazing truck is always on the job, too! Plants using HydroElectrics state this rugged truck handles more than its rated 4000 lb. capacity — up to 24 hours daily — WITH LITTLE OR NO DOWNTIME!

Anybody — man, woman, even a child can operate the HydroElectric with its magic finger-tip control. Permits handling of 2-ton loads or more with effortless ease.

Find out how much the HydroElectric can save in your plant. Write for folder "H".

Engineered and patented by W. Stuebing.



LIFT TRUCKS, INC.

Walter Stuebing, President

2425 Spring Grove Ave. Cincinnati 14, Ohio

When inquiring specify CP A4794 — see handy form pages 2-3

When inquiring specify CP A4795 . . . see information request blank, pgs. 2-3

CHIKSAN

Straight flow

FIRE MONITOR



For complete, fool-proof fire protection, install CHIKSAN Non-Spin Fire Monitors at strategic locations. Easy turning is provided by double rows of ball bearings, permitting the Chiksan Fire Monitor to be turned full 360° in both horizontal and vertical planes. Monitor can be locked in any desired position. Since the discharge flow is in the same plane as the supply line, the Chiksan Fire Monitor will not spin. This means greater safety to the operator. Nothing to tighten or adjust. The Chiksan Fire Monitor is ready for instant action all the time. Write for latest catalog.

OTHER USES:
Hydraulic Washing Equipment, Log Debarking, Mixing Equipment. Can be supplied with any type of nozzle required.

CHIKSAN REPRESENTATIVES IN PRINCIPAL CITIES
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When inquiring specify CP A4796 — see handy form pages 2-3

New Solutions

Cork Product Molds Cleaned Six At a Time by Soaking in Tank

Hot solution employing compound eliminates labor of manual scraping; tank equipped with framework and electric hoist

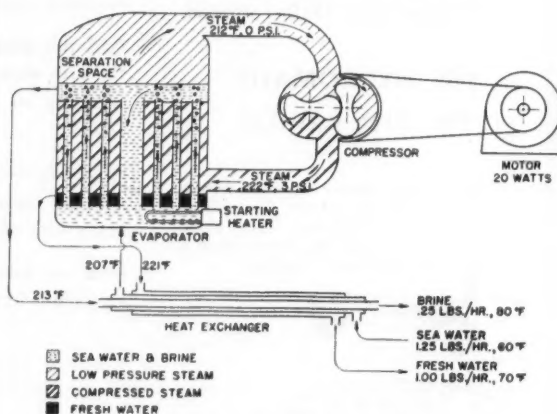
Problem — Numerous articles made from cork such as pipe covering, washers, gaskets, etc. are manufactured in steel molds. The ground cork, mixed with resins and other binders is molded at temperatures ranging between 540° and 650° F. These molds require periodic cleaning and the removal of the baked-on resin and cork deposits is difficult. Cleaning by hand scraping and by drilling with special tools has been the customary practice in many plants producing such molded cork products. Because of the time and labor involved a more efficient cleaning method was sought.

Solution — A suitable compound was obtained that made possible the removal of the baked-on deposits by soaking the molds in a boiling solution. This removed the greater portion of the deposits in about one third the time formerly required. The accumulations that still remained in the recesses of the molds were then easily removed by compressed air. One such plant has had a 400 gallon tank built with a frame and electric hoist so that molds can be cleaned six at a time. Additional information on this mold cleaning compound and tank and hoist design on request.

OAKITE PRODUCTS, INC., Dept. CP, 22 Thames St., New York 6, N. Y.

When inquiring specify CP A4797 — see handy form pages 2-3

Compression Distillation Solves Water Purification Problem



Principle of compression distillation

Problem — In World War 2 barren islands had to be faced where there were no streams and no springs that gave up water fit to drink. Also naval vessels had the problem of supplying water for drinking and other purposes where the sea was the only source of supply. Both problems demanded some type of portable water works of small dimensions.

Solution — Known theoretically for many years, the application of mechanical energy instead of external heat has been made to supply an average of 175 lbs. of distilled

water per pound of fuel consumed, (which is three to four times greater than can be obtained with conventional systems). Steam or other vapor is mechanically compressed on leaving the evaporation department of the still. The temperature of the steam is thus raised a few degrees and as the pressure is also raised, the steam condenses somewhat above the boiling point of the evaporating water. Thus the condensing vapor supplies heat inside the steam chest of the still instead of having this heat supplied externally. Prevention of heat loss to the atmosphere and the recovery of heat from the distillate complete the major design features of the system. Another major feature is the fact that no separate condenser is used. In operation after the compression still and the medium used have reached a pre-determined temperature of operation, steam will be in the evaporator and the still may be put into continuous use. Feed water enters by means of a triple passage heat exchanger and is heated by the outgoing distilled water and the brine concentrate which contains most of the water solids in concentration. The feed water, at around 207° F., is mixed in the evaporator with a relatively large volume of brine which is carried in vertical tubes. Steam obtained from this operation is taken from the evaporator through an entrainment separator to the compressor, where the pressure is about 3 pounds per gauge. The condensing temperature is, of course, raised to around 222° F., but since the brine in the evaporator boils at 213° F., there is a temperature differential of about 9° F. available to give heat transfer from the compressed steam to the brine. Nearly all the latent heat is needed to maintain the necessary temperature level for continuous boiling in the evaporator. It is claimed that the compression distillation system applied to sea water has the economy of a 15 or more effect evaporator. This method shows promise to the distillation of any one volatile component system. Under appropriate operating practices a capacity drop of only 10% in output is reported due to scale formation.

ARTHUR D. LITTLE, INC., Dept. CP, Cambridge 41, Mass.

When inquiring specify CP A4798 — see handy form pages 2-3

Double-Glazed Windows Prevent Condensation and Heat Losses

Hollow aluminum tubing used to separate and hold glass plates in position

Problem — Prevention of condensation is one of the most difficult transparent fenestration problems to solve in all types of applications. This is a factor that must be considered in connection with the use of larger windows now so generally desired in office and industrial buildings. Uniform temperature and humidity and holding air-conditioning and heating costs at low levels are also involved in window installations.

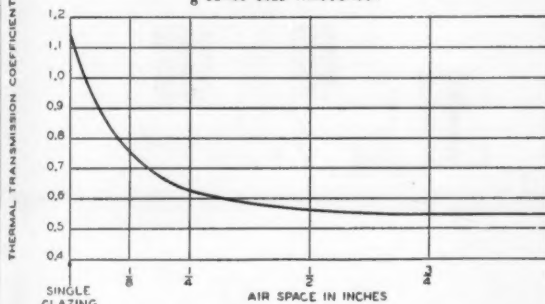
Solution — Development of a new type, efficient double glazed window insulating unit known as the Twindow embodies integral insulating units of two or more plates of glass enclosing a quarter-inch or half-inch hermetically sealed air-space. One of the features of the Twindow is the use of hollow aluminum tubing to separate and hold the glass plates in position. The entire unit is framed with a light gauge stainless steel channel (.015 to .020) with the channel legs extending three-eighths of an inch inward on the surface of the glass from the base around its periphery to give maximum protection during installation.

New Solutions

tion and use. The hermetically dead air in the space between the plates of glass is held at atmospheric pressure. It is dehydrated initially by means of a drying agent within the aluminum spacer tubing which has access to the air

TWINDOW OVERALL THERMAL CONDUCTIVITY
VARIATION WITH AIR SPACE THICKNESS

INSIDE TEMPERATURE 70°F-STILL AIR
OUTSIDE TEMPERATURE 0°F-15 MPH. WIND VELOCITY
1/8" GLASS USED THROUGHOUT



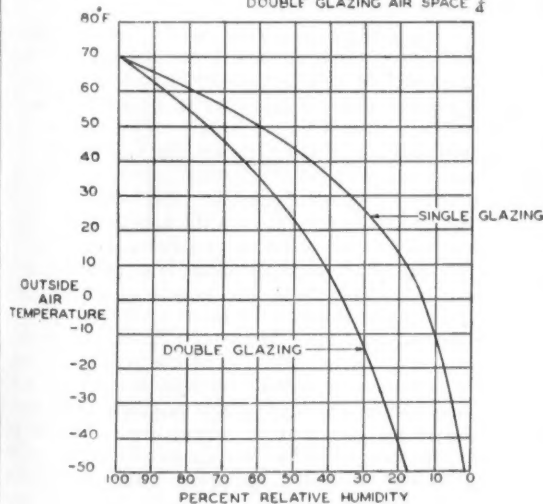
* BTU/SQFT/HR/DEGREE F. TEMPERATURE DIFFERENCE

space through holes adjacent to the internal corners. This provides a hermetically perfect seal. The drying agent or desiccant remains in the unit and provides added insurance vapor diffusion and aids in meeting more than normal atmospheric changes.

Clear polished plate glass is used in construction of the

OUTSIDE TEMPERATURE REQUIRED TO PRODUCE
CONDENSATION ON ROOM SIDE GLASS SURFACE

ROOM TEMPERATURE 70°F
OUTSIDE WIND VELOCITY 15 MPH
ALL GLASS 1/8" THICK
DOUBLE GLAZING AIR SPACE 1/4"



standard Twindow unit. In addition, however, the units can be fabricated with special glasses to meet all needs. The accompanying charts show. (1) comparison of single and double glazing — the chart plotting the outside temperature required to produce condensation on room side glass surface; (2) Double glaze thermal conductivity variation with air space thickness.

PITTSBURGH PLATE GLASS CO., 632 Dequesne Way, Pittsburgh, Pa.

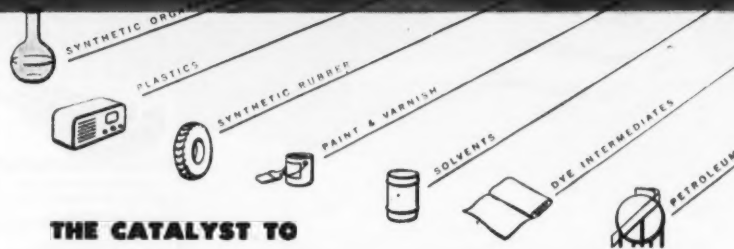
When inquiring specify CP A4799 — see handy form pages 2-3

JULY-AUGUST, 1946

General Chemical Fluorine Research

BORON FLUORIDE

Etherate



THE CATALYST TO CHART NEW COURSES FOR AMERICAN INDUSTRY

Boron Fluoride Etherate... valuable catalytic chemical of wide ranging potentialities for American Industry!

This new liquid fluorine compound has a multitude of uses. Technical literature—filling volumes—contains extensive data on the reactions catalyzed by BF_3 as well as by its complexes with other organic molecules. Repeated reference is made to its superiority to other catalysts since reactions are moderated and fewer undesirable by-products result.

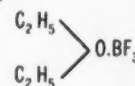
Outlined at right are some of the prin-

cipal applications for BF_3 as a catalyst. Perhaps they indicate ways in which you can utilize a chemical of these characteristics in your development or production program.

Boron Fluoride Etherate is commercially available in drums. For full information, contact General Chemical Company, Fluorine Division, 40 Rector Street, New York 6, N. Y. When writing, if you outline your proposed application for this new catalyst, the technical experts of our Fluorine Division can work with you toward an early solution of your problem.

Physical Properties

Formula:



Mol. Wt. 141.9
Melting Pt. Less than -60°C
Boiling Pt. 125°C
Spec. Gr. 1.14 at 25°C
% BF_3 47.8% min.

Some of the Principal Reactions Catalyzed by BF_3

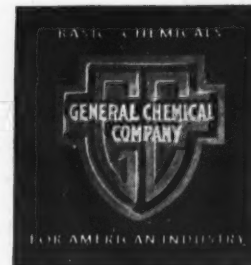
1. Polymerization of unsaturated compounds such as olefins, diolefins, vinyl ethers, fatty oils, and terpenes. The products may be solid polymers useful as plastics or liquids as in the bodying of drying oils for paints and varnishes.
2. Condensation of aromatic nuclei with olefins and diolefins, paraffins, and olefins, and aromatic nuclei or olefins with acids.
3. As a cyclizing agent for rubber.
4. As an esterification catalyst.
5. As a catalyst in the synthesis of aliphatic acids from alcohols and carbon monoxide.
6. As a promoter and dehydrating agent in the sulfonation and nitration of aromatic compounds.

GENERAL CHEMICAL COMPANY

40 RECTOR STREET, NEW YORK 6, N. Y.

Sales and Technical Service Offices: Atlanta • Baltimore • Birmingham (Ala.) • Boston • Bridgeport (Conn.) • Buffalo • Charlotte (N. C.) • Chicago • Cleveland • Denver • Detroit • Houston • Kansas City • Los Angeles • Minneapolis • New York • Philadelphia • Pittsburgh • Providence (R. I.) • San Francisco • Seattle • St. Louis • Utica (N. Y.) • Wrentham • Yakima (Wash.)

In Wisconsin: General Chemical Wisconsin Corporation, Milwaukee, Wis.
In Canada: The Nichols Chemical Company, Limited
Montreal • Toronto • Vancouver



When inquiring specify CP A4800 . . . see information request blank, pgs. 2-3

OLIVITE

THE ACID-HANDLING PUMP WITH VERSATILITY AND STAMINA . . .

Versatile in that it can handle and is handling a great variety of acids and chemicals, both hot and cold. Stamina because it stands up remarkably well against chemical attack, the effect of high temperatures, and abrading action.

Here are just a few of the many solutions being handled:

Magnesium Sulphate	Chlorinated Brine
Alum Solutions	Ferric Chloride
Phosphoric Acid	Sodium Hydroxide
Nicotine Chloride	Copper Sulphate
Acetic Acid	Citric Acid
Sulphuric Acid	Rayon Rinses
Hydrochloric Acid	Fluosilicic Acid

Both design and selected materials of construction enter into the Olivite picture. It's a pump you should know about, if you are handling liquid chemicals in your plant. In writing for Bulletin 308, tell us about your pumping requirements. Sizes range up to 1400 gpm.

See our other advertisement in this issue featuring the O.D.S. Diaphragm Slurry Pump

OLIVITE

The Efficient and Versatile Pump for Handling Hot or Cold Acids and Corrosive Solutions

OLIVER
UNITED FILTERS
INC.



New York 18, N. Y.
35 West 42nd Street

San Francisco 11
California

Chicago 1, Illinois
221 N. LaSalle Street

Canada: Sales & Manufacturing Representative
E. Long Limited, Orillia, Canada

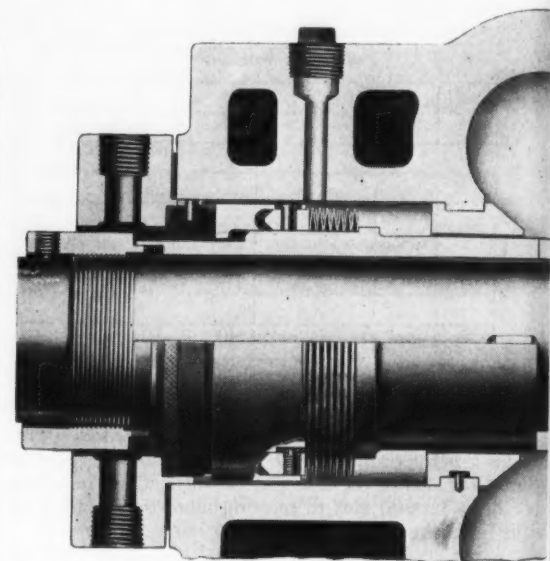
Western Sales Division
Oakland 1, California
2900 Glacioso Street

Factories: Oakland, Calif. • Hazelton, B.C. • Orillia, Canada • Melbourne, Australia

New Solutions

Shaft Seal Aids Pumping of Hot, Corrosive or Volatile Liquids

Many applications in refinery, chemical plants



Sectional view of shaft seal for centrifugal pumps

Problem — Stuffing box conditions that are difficult are encountered in pumping operations in pipe line, refinery and process work, where the liquids include volatile, or corrosive hydrocarbons.

Solution — A solution is offered in the Cameron shaft seal. Although introduced some years ago the unit has over a period of time been brought to its present high state of development. The seal replaces the conventional stuffing-box packing in centrifugal pumps. The face of the rotating seal ring, as it spins against the face of the stationary seal ring provides the sealing action. Since all other joints are absolutely tight, the liquid tries to work its way out of the pump between these two faces. The existing contact pressure of the sealing faces, caused by the pressure of this liquid in the stuffing box, prevents this. The passage of a few drops per minute to provide the necessary lubrication between the faces is allowed. The pressure of the liquid, in an unbalanced seal, pushes the rotating ring against the face of the stationary ring. If all this pressure were applied against the seal face, having the same area of the loading surface, the contact pressure would be too great and the seal faces would wear or burn out. In order to reduce the contact pressure, under the same loading conditions, the area of the seal surfaces is increased. This distributes the load over a larger surface and reduces the unit pressure on the seal faces, obtaining control of the resultant contact pressure, producing a perfectly balanced seal.

The accompanying illustration shows features of the shaft seal, the shaft seal being visible in the bottom at the center. In connection with the range of operation the following is of interest. (A) For hot liquids having poor lubricating qualities — up through 400 pounds per square inch stuffing box pressure and 350° F. (B) For cold liquids having lubricating qualities up through 600 pounds per square inch stuffing box pressure. (C) For liquids containing a small amount of grit the standard seal is employed

CHEMICAL PREVIEW

When inquiring specify CP A4801 . . . see information request blank, pgs. 2-3

New Solutions

and flushing liquid is brought from the pump through a strainer to the seal. (D) For pumps handling corrosive liquids or having pressure up to 400 pounds per square inch — 500° F., a double seal is used. A profusely illustrated catalog (Form 7100) gives detailed information and is available upon request.

INGERSOLL-RAND CO., Dept. CP, Phillipsburg, N. J.

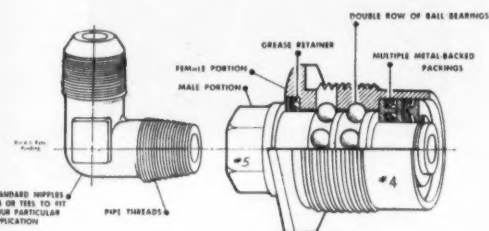
When inquiring specify CP A4802 — see handy form pages 2-3

Ball Bearing High Pressure Swivel Pipe Coupling

Serves in conveying fluids under pressure through pipe which rotates full 360°

Problem — One of the most critical problems in the transmission of hydraulic power is that of conveying fluids under high pressure through a pipe which swivels or rotates a full 360 degrees.

Solution — A coupling has been especially designed to deal with this critical problem. The combination of multiple synthetic packings and metallic seals offers required protection against leakage, at high and low pressures, and forms the basis for a swivel coupling for this type of serv-



View of coupling showing ball races, metal backed packing

ice. A double row of ball bearings, plus metal-backed packings, gives the lowest possible resistance to rotation, permitting ease of operation of all pressures. The engineered construction of the coupling utilizes a male and a female element into which identical ball races are cut. When assembled with grade No. 1 or grade No. 2 steel balls the double rows of bearings perform the dual function of locking these two elements together, as well as carrying the entire rotating and operating load between the swivel parts.

Tests by an aircraft manufacturer showed that in a 3/8 inch pipe size installation the torque was as follows: at 100 psi, — 3.7 inch pounds; at 200 psi, — 6 inch pounds; at 300 psi, — 9.6 inch pounds. This low torque is obtained by ball bearing suspension, straight line load design, and patented metal-packed packings of synthetic materials. The "all-flex" packing system consists of a synthetic rubber gland vulcanized to a metallic backer. At no time is the synthetic portion permitted to carry the mechanical load. The synthetic material forms a positive seal at low pressures. As the fluid pressure increases, the thin edge of the backer ring expands against the walls of the packing recess, backing up and reinforcing the softer synthetic and forming a solid metallic sea! at the higher pressures.

THE SNYDER SALES CORP., Dept. CP, 5225 Wilshire Blvd., Los Angeles 36, Calif.

When inquiring specify CP A4803 — see handy form pages 2-3

JULY-AUGUST, 1946

O.D.S. DIAPHRAGM PUMP



SLURRY HANDLING Simplified . . .

With the O.D.S. Pump slurry handling is simplified because high efficiency is combined with low maintenance. In other words, the pump does a good job of moving slurries and sludges from one point to another—even against high heads—and keeps doing it month after month without need for major repairs. The pump has no mechanical linkage to the diaphragm. Compressed air, vacuum or a combination of both actuate the diaphragm. There are no perforations in the diaphragm to cause weakness. Valves are of the simple ball-check type, capable of passing large pieces of solids without choking. And the pump is not too particular about the location of feed and discharge points.

See our other advertisement featuring the Olivite Acid-Handling Pump

You should know the O.D.S. Pump and what it is capable of doing in the way of handling slurries, sludges and chemical solutions. Write for Bulletin 309.

OLIVER
UNITED FILTERS
INC.



New York 18, N. Y.
33 West 42nd Street

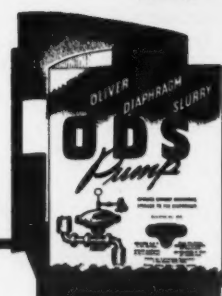
San Francisco 11
California

Chicago 1, Illinois
221 N. LaSalle Street

Canada: Sales & Manufacturing Representative
E. Long Limited, Orillia, Canada

Factories: Oakland, Calif. • Hazleton, Pa. • Orillia, Canada • Melbourne, Australia

Western Sales Division
Oakland, California



When inquiring specify CP A4804 . . . see information request blank, pgs. 2-3



High pressure union between hot molecules...

CUTS THE COST OF STUFF AND THINGS

Chemists have learned to mix the unmixables. It wasn't so only a generation ago. Solids and liquids and gases which formerly remained strictly aloof from each other, today can be united under high pressure and heat.

They produce a myriad of low-cost miracles. The lustrous yet washable gowns; the beautifully stockinged leg; brilliant plastics; weed killers; quick drying paints; fireproof lumber—all are facts of life grandma didn't know about. All are results of high pressuring molecules.

Members of Dresser Industries engineer high-pressure equipment for this large scale chemistry. Pumps that push these hot mixtures around under hundreds of pounds pressure per square inch. Compressors that squeeze chemical activity into the more reluctant substances at 5000 pounds pressure. Storage tanks that hold half a million cubic feet of temperamental gas ready and waiting under a tight lid at 100 pounds to the square inch.

But the compressors and pumps and vessels are themselves made of elements which tend to unite chemically with the contents under heat and pressure. Licking corrosion in high-pressure equipment has been one of Dresser Industries' contributions to lower-cost luxury. As chemistry thinks up new problems, Dresser Industries, Inc., creates the equipment that is *First to Be New—Last to Wear Out*.

KOBE, Inc., Huntington Park, Calif.

PACIFIC Pumps, Inc., Huntington Park, Calif.

ROOTS-CONOVERSVILLE Blower Corporation,
Connersville, Ind.

STACKY BROS. Gas Construction Company,
Cincinnati, Ohio

VAN DER HORST Corporation of America,
Olean, N. Y. and Cleveland, Ohio

BOVAIRD & SEYFANG Manufacturing Co.,
Bradford, Pa.

BRYANT Heater Company, Cleveland, Ohio

CLARK Bros. Co., Inc., Olean, New York

DAY & NIGHT Mfg. Co., Mantrois, Calif.

DRESSER Manufacturing Div., Bradford, Pa.

DRESSER Manufacturing Company Limited,
Toronto, Ont., Canada

INTERNATIONAL Derricks & Equipment Co.,
Columbus, Marietta & Delaware, Ohio;
Beaumont, Texas; Torrance, Calif.

PAYNE Furnace Co., Beverly Hills, Calif.

SECURITY Engineering Co., Inc., Whittier, Calif.

Creative Engineering
IN CHEMISTRY

DRESSER
INDUSTRIES, INC.

TERMINAL TOWER • CLEVELAND 13, OHIO

GEARED TO ANTICIPATE THE COURSE OF INDUSTRY

OIL AND GAS EQUIPMENT A SPECIALTY

New Solutions

Heater Opens New Fields for Low Production Soldering

For use with sealed instruments, automotive, electrical parts and many small assemblies

Problem — The wide application of production soldering of small metal parts and soldering of metal to metallized glass and ceramics imposes the need for quick, low-cost, efficient soldering methods. Induction heating offers distinct advantages in such operations but most units for this purpose are large, semi-permanent, and require high power. Because of the cost element numerous manufacturers have not attempted to utilize induction heating in this manner. Cleaner work and elimination of oxidation is sought in these operations and there are numerous hazards to be avoided.

Solution — Case histories serve to illustrate the worth of this equipment. The maker's own production experience are of interest in this connection. This simple, low power



BENCH-TYPE INDUCTION UNIT

ered induction heater was developed to meet the need for clean soldering of small parts and opens up to a wide production field the possibility of radically reducing costs for soldering operations. In application to the maker's own requirements it has permitted the production of sealed instruments on a competitive basis with unsealed types. Other applications have followed: terminal assembly, magnet assembly, bearing assembly, all have been improved by use of this small unit.

The pole pieces of the magnet assembly of the maker's instruments require soldering operations. Formerly soldered by torch, solder ran over the sides of the pieces, requiring sanding and filing operations to clean the piece preparatory to plating. However, when soldering with the small induction unit, solder is restricted to work area and cleaning is eliminated. When it was decided to metallize jewels for these instruments, the heater was used to perform the soldering operation. The soldering of the jewel in position eliminates four parts. A locating jig was built which positions the jewel accurately and it is soldered into place requiring no adjustment and providing a bearing more solid than by previous methods of spinning. Because of accurate solder control, the resulting assembly has a neat appearance without further operations to clean it up.

The soldering operation can be performed without damaging surface finish or exposing adjacent parts to damaging temperatures. An entire seam can be soldered simultaneously.

CHEMICAL PREVIEW

When inquiring specify CP A4805 . . . see information request blank, pgs. 2-3

New Solutions

ously or a number of small parts which are jig located can be soldered simultaneously.

Inexperienced workers can quickly learn to operate the unit. The coupling link operating at low impedance, is provided with a grounded center tap. The frequency, 450 kilocycles, produces no harmful radiations and is completely shielded for safety. The unit affords complete controllability and lends itself to precise timing and exact duplication of production soldering processes. Besides electronic applications it can be used in other fields: jewelry, watches, toys, instruments, automobiles, electrical fixture components and household fixtures.

The heater is furnished in a standard relay rack cabinet, and measures $15\frac{3}{4}$ " x $21\frac{1}{2}$ " x 15" and weighs 150 lbs. 115v. — 60c — input 775 w. — special wiring not required.

MARION ELECTRICAL INSTRUMENT CO., Dept. CP, Manchester, New Hampshire.

When inquiring specify CP A4806 — see handy form pages 2-3

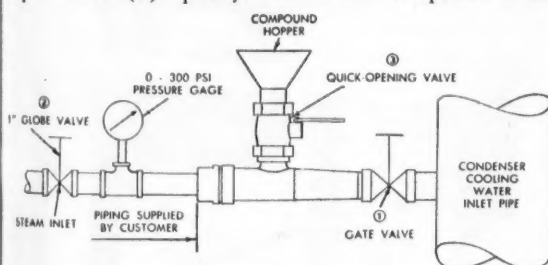
★

Condenser Injector Stops Tube Leaks; Operation Uninterrupted

Compound used does not affect metal and packing

Problem — Condenser tube leaks are encountered in industrial and power plants and those of many process industries and untimely shut-downs are to be avoided.

Solution — A simple, inexpensive, positive means of stopping tube leaks while the unit continues to operate is provided in a condenser injector that is easily installed. The prescribed procedure is illustrated in the diagram. Sequence of the various steps in using the injector as: (1) Slowly open valve (1), and at the same time slowly open valve (2); (2) With valve (1) wide open, continue opening valve (2) until the gauge indicates 150 psi operating pressure. (3) Slightly crack quick opening valve (3). If the unit is operating properly, air will be drawn through the hopper. Then close valve (3). Throw a properly determined amount of injector compound into the hopper. Open valve (3) quickly. When the compound is all



TYPICAL CONDENSER INJECTOR INSTALLATION

drawn in close valve (3). (4) Repeat the process until the condensate salinity is below the danger point.

The whole operation takes less than a minute. The compound available for use with this injector does not affect the operation of the condenser, and is harmless to metal and packing. These condenser injectors are in use by gas and electric companies, oil companies, chocolate manufacturers, building materials plants, etc.

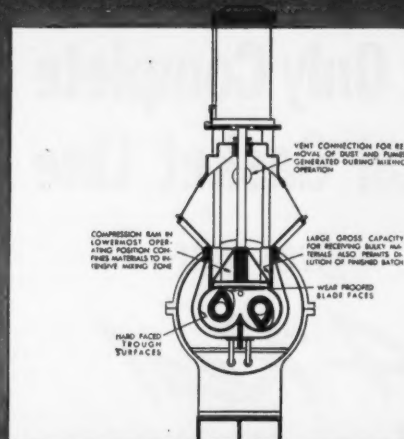
CONDENSER SERVICE & ENGINEERING CO., INC., Dept. CP, 95 River St., Hoboken, N. J.

When inquiring specify CP A4807 — see handy form pages 2-3

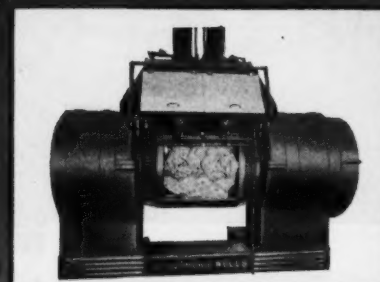
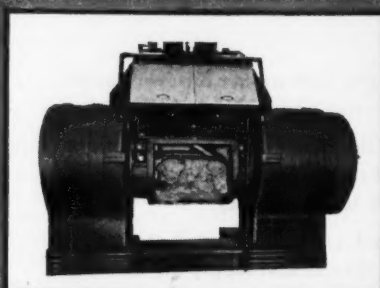
RAPID CHARGE AND DISCHARGE... One of the Outstanding Features of STRUTHERS WELLS

NORTHMASTER

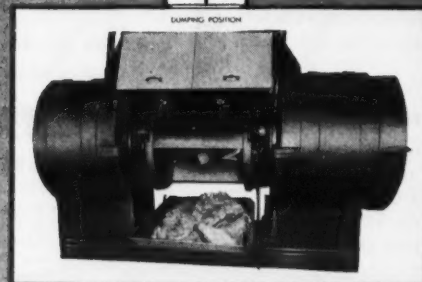
INTENSIVE MIXERS



These are actual photographs of a Struthers Wells Northmaster Intensive Mixer which was recently built and installed for a large manufacturer.



Struthers Wells Northmaster Intensive Mixers are available in working capacity from 125 gallons to 400 gallons for Pigment Dispersion, Rubber Cements and Dispersions, Mixing, Compounding, Dispersion, Processing all kinds of extremely heavy and tenacious materials requiring maximum strength, durability and efficiency. Mixers are con-



structed in accordance with ASME Code requirements, or with separate cooling nozzles. Trough heads are equipped with removable steel liners. Mixing Chamber walls are protected against excessive wear and contamination by the application of Stellite, Colmonoy or other hard facing materials best suited to the materials being processed.

Write today for descriptive, technical Bulletins.

SW

STRUTHERS WELLS CORPORATION

Northmaster Division, Titusville, Penna.
Plants at Titusville, Pa. and Warren, Pa.
Offices in Principal Cities

When inquiring specify CP A4808 . . . see information request blank, pgs. 2-3

GOETZE GASKET CHART

Cross-sections and Construction of Popular Gasket Designs



Specifications, engineering data and drawings of the Goetze line — the only complete line of gaskets — are available in Catalog No. 53. If you do not have a copy on file, send for one on your company letterhead. Or consult the nearest Goetze representative for efficient gasket service.

TECHNICAL BULLETINS

Ask to have your name added to the list of engineers receiving "The Gasket" — a series of technical bulletins containing original and useful gasket information from the Goetze Research Laboratory. Write on your company letterhead giving your position.

The Only Complete Metal Gasket Line

gives you

4 Real Advantages

- You get the *right* gasket for every application — not one that's nearly right.
- You get the benefit of complete laboratory and research facilities to assure you of 100% joint efficiency.
- You avoid unnecessary gasket troubles because Goetze can supply the most efficient and durable gasket for your particular conditions of temperature and pressure.
- You get the services of qualified Goetze representatives in 18 cities.

GOETZE GASKET & PACKING CO., INC.

89 ALLEN AVENUE, NEW BRUNSWICK, NEW JERSEY
 Boston Cleveland Detroit Chicago
 Cincinnati San Francisco Los Angeles Buffalo
 Houston Philadelphia Pittsburgh Denver
 New York New Orleans St. Louis Montreal
 Toronto Syracuse

Goetze for GASKETS

"America's Oldest and Largest Industrial Gasket Manufacturer"

When inquiring specify CP A4809 . . . see information request blank, pgs. 2-3

New Solutions

Continuous Electronic Seaming of Thermoplastic Materials

Seals up to 10 thicknesses of .004 inch film;
 seams range from 1/16 inch — 1/4 inch

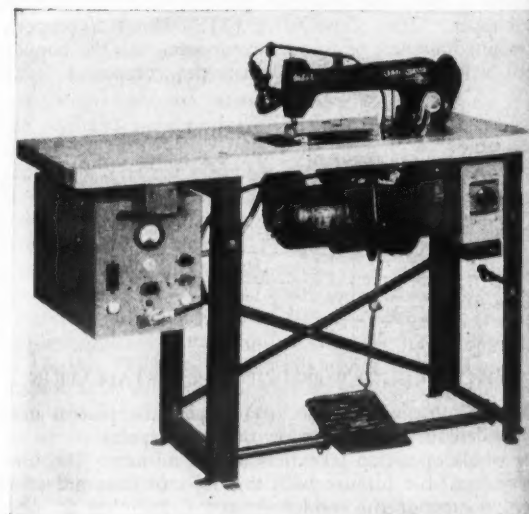
Problem — Electronic seaming can be compared to resistance welding of metal — with some important exceptions. In seaming a thermo-plastic material, common electric current cannot be used. Already serving in practical production operations in producing articles from thermoplastic



Machine seals multiple thicknesses of thermo-plastic film in a silent, continuous operation

film materials, specific individual problems are to be encountered utilizing this method. In numerous instances production of a fused seam in a silent, continuous operation is desired. Efficient production of tubular sections in any length is also a point of serious interest to organizations in this division of the plastics industry.

Solution — A new line of machines, one of which is pictured here, is available for electronic seaming of thermoplastic film materials such as Vinylite, Pliofilm, Koroseal,



Sealer assembly: head, motor, electrodes, treadle, generator, frequency adjustment, voltage control

Saran, and others. A distinctive feature is the use of revolving electrodes, through which two or more plies of material are passed to produce a fused seam continuously, silently, rapidly. The resemblance to a conventional sewing

CHEMICAL PREVIEW

machine is to be noted. The unit in the illustrations is equipped with an RCA 200 megacycle (200,000,000 cycles per second) constant frequency generator. Power is supplied to the rotary type electrodes at the seaming head. This machine has sufficient power to seam ten thicknesses of .004 inch vinyl film or two thicknesses of .020 inch film. Power is taken from any ordinary 110-120 volt, single phase, 60 c. A.C. line capable of supplying 13 amperes. The controls include a conventional treadle connected to a 1/2 HP clutch-type motor which drives the seaming head. The same treadle also controls the off-on switch for high frequency power to the electrodes. Seam widths ranging from 1/16 to 1/4 inch may be obtained by changing the top electrode. The same principle employed in the continuous seaming process is applied in a "feed-of-the-arm" seamer for producing tubular sections continuously in any length. Guides, folders and attachments may be used in much the same manner as on needle type sewing machines. It will be seen that the R.C.A. high frequency generator is suspended from the left end of the table board. All essential safety precautions are observed, all high voltage power being completely shielded inside generator. Information regarding seaming problems is available to producers and fabricators of materials.

UNION SPECIAL MACHINE CO., Dept. CP, 462 North Franklin St., Chicago 10, Ill.

When inquiring specify CP A4810 — see handy form pages 2-3

Cottonseed Weighed in Bulk from Seed House to Oil Mill

Errors due to erratic feed supply avoided by use of conveyor feed automatic scale

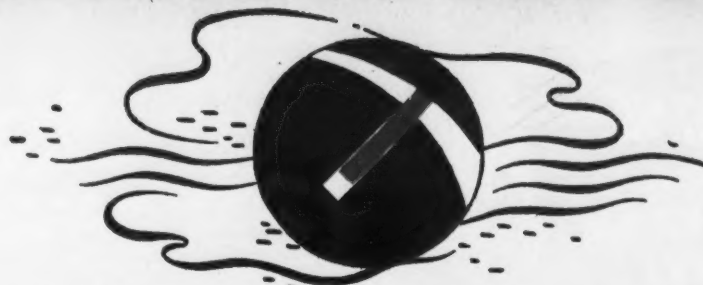
Problem — Efficient, profitable operation of cottonseed oil (and peanut oil) plants depends to a large extent on the accuracy of weighing, handling, storage and related operations. Important factors to be considered in operation are ability to determine manufacturing loss, yield of oil, meal, lint and hulls per ton of seed crushed. In case of fire, knowledge of loss of seed, is desired to collect insurance. Errors in weighing cottonseed by conventional methods may be attributed to erratic feed supply. Sufficient material (seeds, or hulls or unshelled peanuts, as the case may be) is necessary for each complete cycle of the scale.

Solution — A conveyor feed automatic scale will weigh in bulk, cottonseed, uncleaned or cleaned, testing 18 pounds or more per cu. ft. from seed house to oil mill. (Made with a deeper weighing hopper to hold a similar unit load of the lighter material, this type of scale is also used for weighing cottonseed hulls from the mill to the hull house. Uncleaned seed weighed before the cleaners must not contain any foreign matter sized over 4" in greatest dimension.) The variable feed control in the feed chute of this scale stores up material until there is enough for a complete weighing before permitting the scale to operate. With this device the scale weighs accurately regardless of any variation in the rate of supply. It is self-adjustable to any rate of supply within its capacity. The wide, slow-moving conveying belt feeder can't choke. The weighing hopper is chokeproof as its entire lower half opens to discharge the weighed load. There is a door at the bottom and at one end at the front. These open together and thus there is no possibility of light or green or damp seed, or hulls remaining inside. The scale is dustproof.

RICHARDSON SCALE CO., Dept. CP, Clifton, N. J.

When inquiring specify CP A4811 — see handy form pages 2-3

JULY-AUGUST, 1946



MORE of EVERYTHING...Except Complication

... in Gast Vacuum Pumps (to 28 in.), Compressors (to 30 lb.), and Air Motors (to 1 h.p.)
For Original Equipment

When you drop a match into an ash tray, you don't put a spring behind it to *MAKE* it drop; it drops by itself.

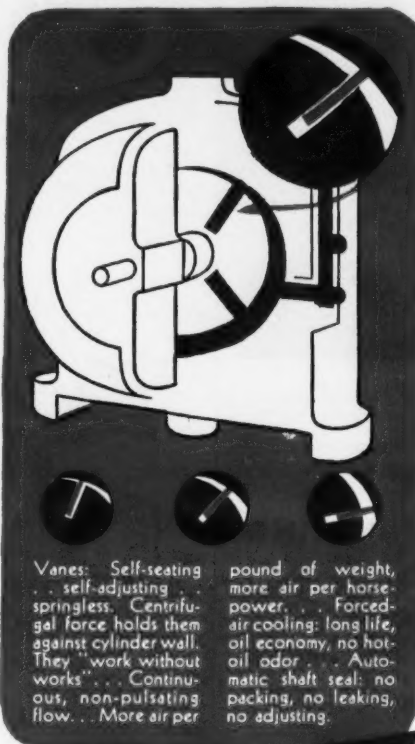
Gast design is like that. Instead of complicating matters with mechanical means for accomplishing ends, Gast uses the forces inherent in things themselves.

Example: A rotor rotates. In doing so it creates centrifugal force. In an armature that force goes to waste. In a piston it doesn't even exist. *But in a Gast it compresses the air.* (Or creates the vacuum. Or runs the motor.)

Thus the Gast is remarkably free of valves, springs, rings, slides, guides, hinged members and the like. With design that doesn't get in its own way the Gast is direct and simple, finely built, reasonably priced. With such design the Gast is able to give MORE per pound of weight, MORE per horsepower, MORE of what's wanted, and LESS of power-consuming, maintenance-breeding complexity.

That is what makes the Gast preferable as standard equipment on other machines. How about yours? Better send now for the new Gast catalog. It's full of ideas.

GAST MFG. CORP.
101 Hinkley Street
Benton Harbor, Michigan



Vanes: Self-seating... self-adjusting... springless. Centrifugal force holds them against cylinder wall. They "work without works"... Continuous, non-pulsating flow... More air per pound of weight, more air per horsepower... Forced-air cooling: long life, oil economy, no hot-oil odor... Automatic shaft seal: no packing, no leaking, no adjusting.

GAST ROTARY

VACUUM PUMPS • AIR COMPRESSORS • AIR MOTORS



Gast Vacuum Pump in a Tank Sump Cleaner



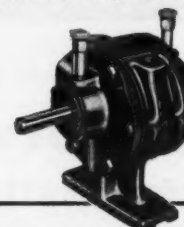
A Gast Compressor is Tucked Inside this Powder Blower



Gast Vacuum Pump in a Photographer's Portable Printer.

ENGINEERING TEST OFFER .. So You Can SEE IF YOU'RE MISSING SOMETHING!

Simply write our Engineering Department and explain the operation you think air might handle, or describe the job air is already doing for you. Our Engineering Department will study your problem, select or design a Gast unit to do the specified work at less cost or at greater efficiency or both. Then, without cost or obligation, the recommended unit will be shipped to you for your performance tests.



GET THIS IDEA-CATALOG



It not only tells how Gasts are built and all about them, but suggests uses that may not have occurred to you. Write for it; no charge or obligation!

1781

When inquiring specify CP A4812 . . . see information request blank, pgs. 2-3



You never have to repack a Clayton Valve because there isn't any packing to wear out or start leaking. Since the ordinary valve is usually not repacked until it starts to leak, Clayton Valves eliminate waste due to this cause. Furthermore, the Feather-Touch action of the Clayton Valve cannot be impaired because there is no packing to squeeze against the valve stem and retard instant opening or closing action. This is but one of the many features of Clayton Valves which assure better performance, more dependable action and more economical maintenance. You gain all these advantages in every Clayton Valve you install.

THE CLAYTON LINE includes Remote Control Valves, Float Valves, Altitude Valves, Check Valves, Constant Discharge Pressure Valves, Pump Control Valves, Backflow Prevention Units.

Write for Engineering Data
VALVE DIVISION
CLAYTON MANUFACTURING CO.
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CLAYTON VALVES
with FEATHER-TOUCH CONTROL

When inquiring specify CP A4813 — see handy form pages 2-3

PLANS DEVELOP Efficient MATERIAL HANDLING MODERN MACHINES CARRY OUT THOSE PLANS

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CLARK FIELD ENGINEERS can show you how to speed production, cut costs, reduce accidents—lift the load from labor's back, freeing it for more skilled work.

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TRUCKS
and
INDUSTRIAL
TRACTORS**



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DIVISION OF CLARK EQUIPMENT COMPANY
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OTHER PLANTS: BUCHANAN JACKSON BERRIEN SPRINGS MICHIGAN

When inquiring specify CP A4814 — see handy form pages 2-3

New Solutions

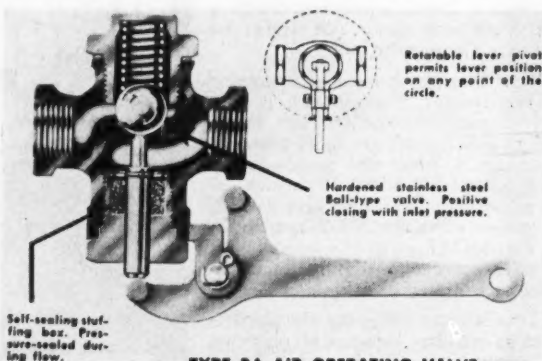
Lever Opens Valve Instantly From Almost Any Position

Self-sealing, air-operated ball type; operating pressures up to 200 psi recommended

Problem — Operating requirements in many instances indicate the desirability of instant opening, and this to be achieved with the lever located in the most suitable position.

Solution — A self-sealing, air-operated valve, — ball type — is identified by the maker as Type BA. Fitted with a hand opening lever and a rotatable pivot so that the valve can be located in any position, this valve can be opened instantly from almost any position with either a horizontal or vertical pull. Ball valve closes tightly with inlet pressure and will not collect dirt or other foreign matter. The stuffing box is not accessible to tampering or adjustment and is self-packed by the operating pressure when the valve is open, permitting flow. Operating pressures up to 200 pounds are recommended. Construction with cast iron bodies, integral seating surfaces, screwed connections, and in 1/2 inch sizes.

When fitted with cam operated lever this valve is then termed the Type BAC and permits instantaneous valve



Valve opened with horizontal or vertical pull

opening and closing by throwing the lever in the desired direction. The lever is held in the position thrown until manually returned to the original position. The yoke supporting the lever can be rotated around the valve bonnet to any desired location. Enlarged lever end provides easy visual check on inner valve position. Illustration shows cross-sectional view of Type BA valve.

LESLIE CO., Dept. CP, 281 Delafield Ave., Lyndhurst, N. J.

When inquiring specify CP A4815 — see handy form pages 2-3



Stainless Steel Tanks

A series of bulletins on stainless steel tanks are combined into a handy cover and give essential data and present illustrations of stock tanks, half round tanks, horizontal tanks, mixing, storage tanks and milk storage tanks. Many of these bulletins have convenient tables giving capacities, dimensions and construction details. The equipment is suitable for beverage, dairy, ice cream, food canning and many other food processing requirements.

METAL-GLASS PRODUCTS CO., Dept. CP, Belding, Mich.

When inquiring specify CP A4816 — see handy form pages 2-3

MOISTURE ENGINEERING

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automatically and accurately provides

**THE
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SURFACE COMBUSTION • TOLEDO 1, OHIO

**SC Kathabar System of
HUMIDITY CONTROL**
(ADVANCED AIR CONDITIONING)

When inquiring specify CP A4817 — see handy form pages 2-3

SAVE TIME SAVE MATERIALS REDUCE ERRORS

Weigh... Count... Batch... Measure... Test
with YALE-made

KRON SCALES

Hidden costs in many industrial weighing practices add up to sizeable production costs. By reducing weighing to a simple "load and look" operation, rugged, precision-built Kron Springless Dial Scales assure accurate hair-line readings—save time and materials—eliminate the need for keeping track of and computing split and tare weights. And only Kron has a swivel head that can be rotated 360° to permit face-to-face readings and avoid point-of-view differences. Write for Catalog.

THE YALE & TOWNE MANUFACTURING COMPANY
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4530 Tacony Street, Philadelphia 24, Pa.

Portable Platform Scale with
three wheels and handle.
Yale-made Kron Scales are
of all types from bench to
crane scales. Wide range of
capacities for all needs.

YALE



When inquiring specify CP A4818 — see handy form pages 2-3

Revised Standards Reduce Pipe Covering Sizes

*Achieved by variation of outside
diameter*

Problem — Most wall thicknesses of pipe coverings have been based on old precedents and practices. There has been an unrelated multiplicity of sizes, complicating and slowing down production and increasing inventory requirements.

Solution — By slightly varying the outside diameter, every size and thickness will exactly fit over or into another standard size thickness. In most cases the variations are plus, but the minus cases are compensated for in the case of the coverings discussed here by the high insulating value of the light density type (11 lbs. per cu. ft.) precision molded 85% magnesia. (Plus and minus variations are within the range approved by the U. S. Navy — ref. Bureau of Ships, specification 32P8b). In explaining this system of simplified thickness standards the following definitions are given.

Prime sizes — single layer construction. Assemblies — all other thicknesses, assembled from prime sizes. Nominal thicknesses — Terms commonly used to group actual thicknesses, under nearest regular thickness headings. For example, take 2" pipe size nominal. 1" thick is really 1 1/16" thick and nominal 3" thick is really 3 1/8" thick, etc.

Assembled sizes and thicknesses are furnished from the factory either cemented together — solid construction — or uncemented — broken joint construction. Each fit is tight and accurate. It requires only 68 prime sizes to supply 141 or more practical sizes and wall-thicknesses. These include copper tubing sizes from 3/8" to 3" inclusive; also iron pipe sizes from 1/4" to 18" inclusive; and in wall thicknesses from nominal 1" thick to nominal 4" thick or thicker.

This manufacturer has issued a bulletin containing a comprehensive chart on precision molded 85% magnesia pipe covering and high temperature pipe covering prime sizes and thicknesses; usual factory standard assemblies, sizes and thicknesses; also actual wall thicknesses of nominal thicknesses.

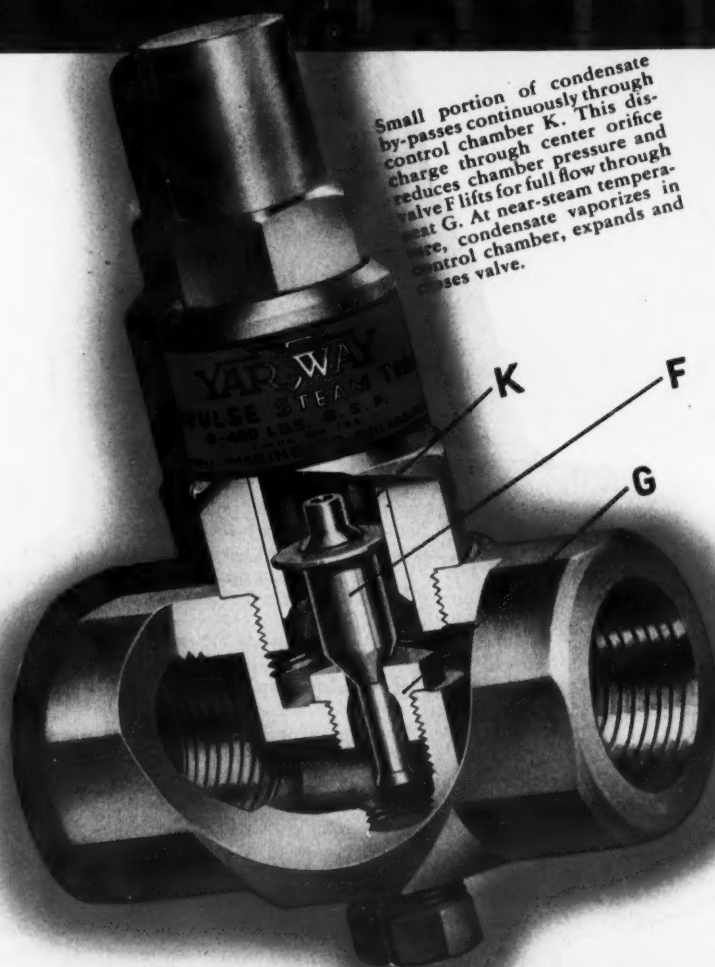
**PLANT RUBBER & ASBESTOS
WORKS, Dept. CP, 537 Brennan St.,
San Francisco, Calif.**

When inquiring specify CP A4819
— see handy form pages 2-3

For more information on product at right, specify CP A4820
... see information request blank between pages 2-3.



SIX and How They Work!



Small portion of condensate by-passes continuously through control chamber K. This discharge through center orifice reduces chamber pressure and valve F lifts for full flow through seat G. At near-steam temperature, condensate vaporizes in control chamber, expands and closes valve.

Six Yarway Impulse Steam Traps—doing a big job draining condensate from a battery of autoclaves used for experimental extraction of tanning materials. They are typical of the two hundred Yarway Traps installed on a variety of steam equipment at the big Eastern Regional Research Laboratory of the United States Department of Agriculture.

Why were Yarways selected for this important work? For the same reason that over 450,000 Yarways have been bought in less than 10 years for use throughout all industry. *They get steam equipment hotter, sooner . . . and keep it hot.*

In addition, maintenance is easy. There is only one moving part, a simple valve. Small size speeds installation . . . no extra supports are needed. Yarways are good for all pressures without change of valve or seat. And finally, it often costs no more to install Yarway Impulse Traps than to repair older types.

See your nearest Mill Supply dealer, or write for Bulletin T-1739.

YARNALL-WARING COMPANY
125 Mermaid Avenue, Philadelphia 18, Pa.
Yarway Traps are also made and sold in Canada

YARWAY IMPULSE STEAM TRAP

★ Surface Analyzer "FEELS" Flaws of $\frac{1}{1,000,000}$ Inch

• High Frequency Heating Reduces Foam Mattress Cure Time 500%

Instruments

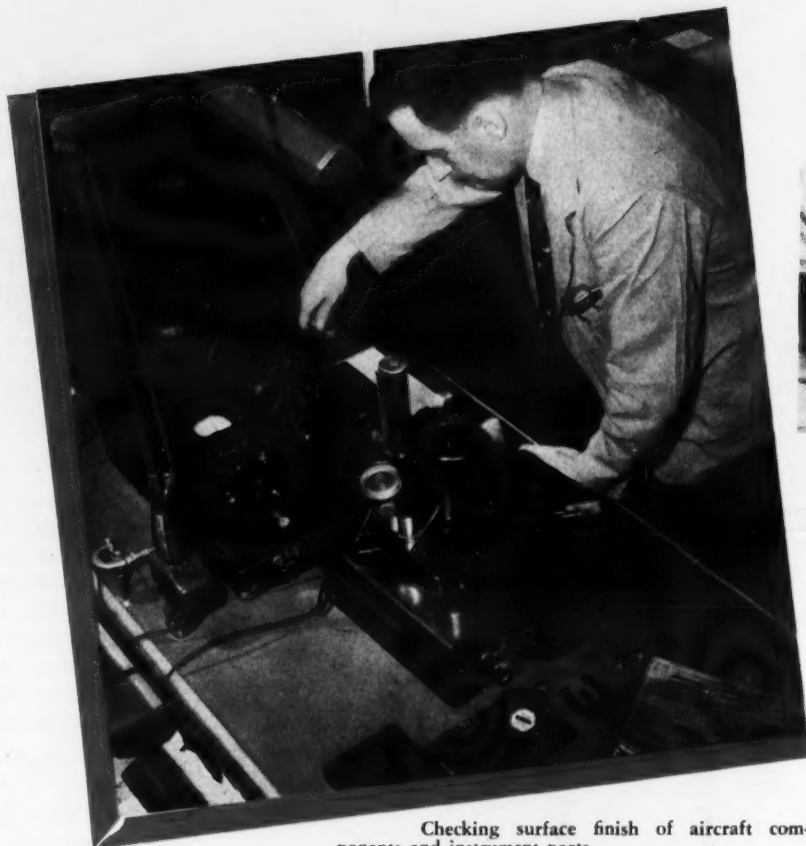


★ Surface flaws magnified 100,000 times. Explores the finishes of metals, glass, plastics, paper and others.

USES — This device is suitable for the study of surface finish in the production of finished metals, glass, plastics, paper and painted objects.

Features — It rapidly measures the width, spacing and depth of surface irregularities from a fraction of 1 microinch (.000001") to 3000 microinches. Peaks and valleys are instantly recorded in graphic fashion on a moving paper chart. This feature is a great advantage as it allows reference to previously made charts for comparisons and standardization.

Description — The surface analyzer is made up of four units: 1. Drive Head, 2. Crystal Pickup, 3. Calibrating Amplifier, 4. Direct Inking Oscillograph. Drive Head contains a 110 volt, 60 cycle A. C. motor which drives the crystal pickup back and forth in a straight line $\frac{1}{16}$ " long in either direction. The drive head, mounted on a vertical post supported by a tripod-type base, can be adjusted vertically or horizontally. Crystal pickup arm is held in place by conical bearings in a yoke-type hanger directly below the drive head. A piezo-electric crystal element is housed in the outer end of the pickup. To it is connected a sensitive, protruding arm which holds a diamond stylus (.0005" tip radius). It is the function of the stylus to rise and fall in the irregularities as it moves back and forth on the surface under test. The calibrating amplifier also operates on 110 volt, 60 cycle A. C. A sensitivity constant is furnished on a card inclosed in each pickup case. This constant should be registered on the voltmeter by adjusting the "calibrating voltage" knob. The swing of the inking pen is then set to 10 millimeters, or 5 each side of the center line by pressing the "calibrate" button and adjusting the "gain" knob. During this procedure the "attenuator" knob should point to .1. Direct inking oscillograph makes a graphic record of the profile of surface



Checking surface finish of aircraft components and instrument parts.

irregularities, the inking pen swings back and forth in rapid irregular strokes over the chart paper which travels at a constant speed of $\frac{1}{5}$ ", 1" or 5" per second, depending upon the speed required to facilitate reading.

Operation — The crystal in the pickup is attached to a diamond stylus located in the extreme tip of the pickup arm. As the pickup moves back and forth through a 10-second cycle, the vertical motion of the stylus in its trace over the surface irregularities flexes or bends the crystal. The crystal generates a voltage, the polarity of which depends upon the direction of the stylus movement. This voltage is then amplified sufficiently to actuate the "Penmotor" located on the direct inking oscillograph. The "Penmotor" drives the inking pen over a moving paper chart according to the direction and magnitude of movement of the pickup stylus. The resulting trace is a profile picture of the surface under test.

THE BRUSH DEVELOPMENT CO., Dept. CP, 3405 Perkins Ave., Cleveland, Ohio.

When inquiring specify CP A4821 — see handy form pages 2-3



Surface finish analysis of brass tubing fittings.

● H-F set has automatic frequency, automatic load and automatic cycling control

USES — High frequency heating is being used for curing and drying of foam rubber products, preheating of preforms prior to molding of rubber wheels, bumpers, motor mounts, curing of plastic thread and many other still confidential processes.

Features — A saving in cure time for a full size foam mattress from 30 minutes to six minutes is realized. Drying of foam mattresses and seat cushions has been reduced from 12 to 16 hours to $\frac{1}{2}$ to 1 hour. Precise control of temperature and uniform distribution of heat combine to give an improved product. Solid rubber products are uniformly hard throughout, blow holes are eliminated, under and over cure sections are no longer a problem and in some products it is believed that a more thorough molecular bond is obtained by the use of radio frequency.

Description — One of the most important phases in applying high frequency heating to factory production of this process was the development of the automatic frequency control, automatic load control, and automatic cycling or production control. The high frequency set (rated at 125 k.w. 12.6 megacycles)—built for the production curing and drying of Foamex is fitted into the production line so that one side can be loaded or unloaded while energy is applied to the other. This provides a high use factor on the h.f. generator. Automatic frequency control is provided by using a crystal to furnish a standard or reference frequency, a frequency-sensitive circuit whose output is proportional to deviation of the actual from that of the standard frequency. The output actuates a motor-driven vernier capaci-



Installing one of two power tubes for electronic vulcanization of Foamex mattresses

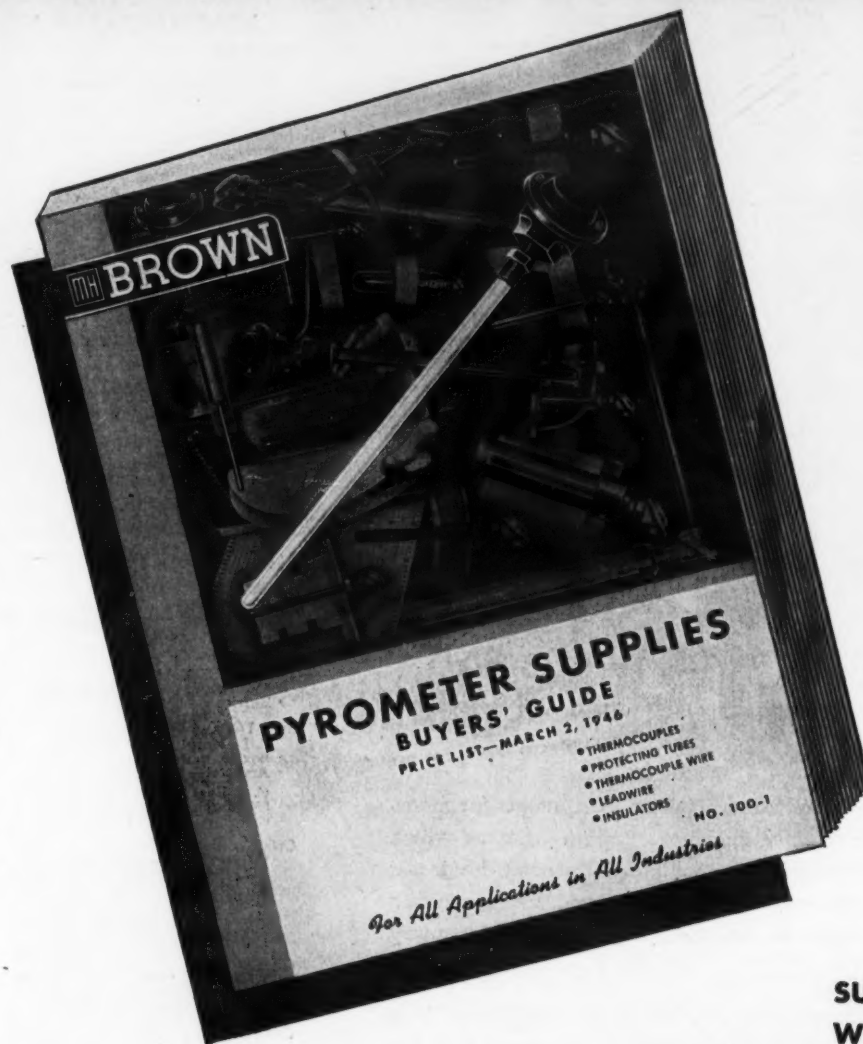
tor which is a part of the frequency-determining circuit. This holds the frequency within plus or minus 0.05 per cent, which is the equal of the frequency control required of radio stations. Automatic control of heating, regardless of variations in the work circuit as the heating progresses, is achieved by automatically varying the coupling of power from the r-f generator and by automatically keeping in tune circuit elements located at the electrodes. At 30 megacycles and higher frequencies the generator-circuit elements of capacity and inductance become electrically and physically small. Current through coils and condensers becomes high with resultant high component loss. Capacitors of the mica type normally used for this purpose may fail because of excessive internal loss. The solution is a device called a "Capaciductor," which in effect combines capacity and induction in one unit. It looks like a capacitor of four or five fixed plates, but is some 20 to 25 inches long to give it the inductive reactance necessary for operation at 30 megacycles. It combines the features of a conventional transmission line-type circuit and the fixed capacitors normally associated with that type circuit. The manufacturer states it eliminates complicated and expensive mica capacitors, is simple to manufacture and will work without failure — simplicity and reliability gain.

WESTINGHOUSE ELECTRIC CORP., Dept. CP, 306 Fourth Ave., Pittsburgh 30, Penna.

When inquiring specify CP A4822 — see handy form pages 2-3



Drying oven where electronic energy is used. Electronic unit has 125,000 watt capacity



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When inquiring specify CP A4823 . . . see information request blank, pgs. 2-3

Just what are
ROTAMETERS?

► Rotameters are extremely simple and accurate instruments for measuring rate of flow. They have only one moving part—a rotor which moves up and down in a tapered tube. Schutte & Koerting, having a background of 65 years' experience in designing and manufacturing tapered tube jet devices, produced the first rotameter in this country more than 15 years ago.

• When you install an S-K Rotameter, you benefit in many ways from the practical experience of both local and factory engineers that has gone into its development. You can be sure you have the right meter for the job to be done. And service, from the initial inquiry to successful installation, is designed for customer convenience. Our local engineers have had years of experience in your territory.

• Detailed information about S-K Rotameters can be obtained by writing for Bulletin 18-R which completely illustrates and describes the different types of S-K Rotameters, including accessories, and discusses the factors which help you select the correct Rotameter for specific applications.

If you need help on an immediate flow metering problem, telephone or write to the nearest S-K representative for engineering assistance.

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CONDENSERS AND VACUUM PUMPS • OIL BURNING EQUIP-
MENT • ROTAMETERS AND FLOW INDICATORS • RADIATION TUBES
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Instruments

Electric Hygrometer Employs Fast Sensing Element

*Microchanges within plus-minus 0.5% relative
humidity are instantly sensed*

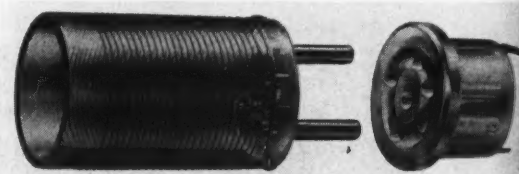
Uses — For the precise measurement and control of humidity this device is useful in the tests and studies of Water Vapor Permeability, Water Absorption and Adsorption, Biological Control Pharmaceuticals, Climate Data, Water Vapor Retention, Food Packaging, Long-time Preservation Packaging, Dehydration and Decomposition of Organic Materials.

Features — Measuring element is sensitive, compact, precise and instantly responsive to changes in relative humidity. Readings are reproducible. Element has a high degree of stability under all conditions of use. It adds a moisture to nor removes any from the space whose moisture content is being measured or controlled. Only two cubic inches of space are required for the element. Moisture determinations are accurate at low temperatures and low relative humidities. Observational errors that occur when measuring or controlling relatively low temperatures and humidities are not greater than when measuring moderate or high temperatures and humidities.

Description — The heart of the electric hygrometer is the humidity sensing element which responds instantly to microchanges in relative humidity, and transmits these changes to the indicator in terms of electrical current. It consists of a polystyrene cylinder, a dual winding of precious metal wire, a coating of moisture-sensitive compound, and plug-in contact pins. Since the coating is highly sensitive to moisture, a microchange in relative humidity changes the amount of moisture held in the coating and



Instrument indicates and records relative humidity



Sensing element occupies two cubic inches

changes the conductivity between the two wires, thus changing the amount of current indicated on the dial of the meter.

Eight sensing elements, when used together, cover the entire relative humidity range from 7% to 100%. Sensing elements may be used singly for a narrow range of relative humidity, or in multiple by means of a multiple mounting unit equipped with a selector switch that per-

When inquiring specify CP A4824 . . . see information request blank, pgs. 2-3

mits the selection of any one of the ranges covered by an individual sensing element.

Calibration curves are supplied with each sensing element. These curves interpret either microampere meter readings in terms of relative humidity when an indicator is used, or dial reading in terms of relative humidity when a controller is used.

The standard temperature range of the hygrometer is 40 degrees to 120 degrees Fahr. dry bulb. Calibration data for lower and higher temperatures are available. Instruments available for use with the sensing elements include Indicators, Recorders and Controllers. Descriptive literature may be had on request.

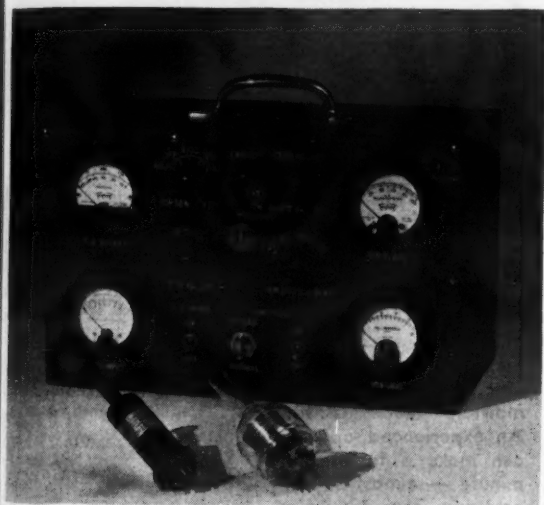
AMERICAN INSTRUMENT COMPANY, Dept. CP, 8010 Georgia Ave., Silver Spring, Md.

When inquiring specify CP A4825 — see handy form pages 2-3

★

Thermocouple-Ionization Gauge Handles Wide Range of Vacuum

Range of vacuum measurement is 1 mm. to
 2×10^{-7} mm. of mercury



Type 706 thermocouple-ionization gauge control

Uses — The thermocouple-ionization gauge control incorporates circuits for use with the type E thermocouple gauge or any standard ionization gauge and is used in vacuum measurement.

Features — Thermocouple gauge circuit is production tested, ionization gauge circuit has outgassing provision. Unit includes interlocking relay for protection, zero set and zero adjust controls for amplifier balancing.

Description — The thermocouple gauge control is the standard and proven circuit used in the Type 701 Control, and the ionization gauge control circuit is provided with an amplifier to read microamperes of ionization current on four ranges. These ranges indicate full scale meter deflection at 500, 100, 10 and 1 microamperes respectively and with the Type 507 ionization gauge it is possible to read full scale pressures of 5, 1, 0.1, and 0.01 microns directly from the plate meter. By doubling the grid current of the 507 gauge the response of the gauge is doubled. Under normal grid currents of 5 milliamps the lowest pressure measurable on the ionization gauge circuit is 2×10^{-4} microns (2×10^{-7} mm. Hg.) The ionization

control is provided with an "outgas" circuit so that on gauges such as the Type 507, the filament current may be used to degas the grid element. A conveniently located "Zero Set" button and "Zero Adjust" knob permit easy balancing of the amplifier at any time. An interlocking relay on the "Ion Grid Current" adjust knob makes it impossible to turn on the filament current unless the grid current control is returned to zero, thus protecting the filament from burning out if the pressure in the gauge is too high. All controls are located on the front panel for ease in operation. The circuits and electrical components are all located on a chassis which is attached to the panel so that the control panel assembly may be removed as a unit from its box and inserted in the control panel of any major piece of vacuum equipment. The 706 control is designed so that it may be run with the panel either in a vertical position or face up on a table for ease in operation. A convenient carrying handle is located on the top of the metal box enclosing the elements. More details available on request.

VACUUM ENGINEERING DIV., NATIONAL RESEARCH CORP., Dept. CP, Boston 15, Mass.

When inquiring specify CP A4826 — see handy form pages 2-3

★

Differential Transmitter Meters Hot Coal Tar, Pitch or Fat

Device is piston operated. Temperature changes
do not affect easy operation



Republic piston type pneumatic transmitter

of long lead lines between orifice and meter.

Description — Regular orifice tap connections are made between orifice and piston of the transmitter. Transmitter develops an air impulse proportional to the pressure drop across the orifice in pipe line in which hot liquid is flowing. Developed air impulse is directed to an indicating, or recording flow meter. A piston (in the transmitter) is used instead of the usual diaphragm to avoid the effect of hot liquids on the diaphragm (non-metallic diaphragms are not suitable above 200° F. and metallic diaphragms might give erratic results at high temperatures). The transmitter is designed for installation in a manner that keeps the measuring chambers hot enough to prevent the measured fluid from congealing in the transmitter chambers and lead lines. The piston and cylinder are made of steel of the same composition, so that the clearance is maintained regardless of temperature changes. This piston type transmitter is now being used for the measurement of coal tar pitch at a flowing temperature of 550° F. and the flow of petroleum tar at 600° F. Detailed information is available on request.

REPUBLIC FLOW METERS CO., Dept. CP, 2240 Diversey Pkwy., Chicago 47, Ill.

When inquiring specify CP A4827 — see handy form pages 2-3

Uses — Unit is designed for the metering of the flow of hot liquids, which are so viscous at room temperatures that they congeal in the lead lines.

Features — Avoids necessity

New GYCO PYROTRAN



TRANSFORMER AND PYROMETER In ONE Instrument

The Gyco Pyrotran is a new heavy-duty combination transformer and pyrometer. Although designed primarily to control temperatures in heating jackets, it can be used wherever a variable transformer is required. The Pyrotran can operate at full power for a long period of time at high amperage load without any appreciable heat rise.

The principal feature of the Pyrotran is the method of controlling voltages by two snap-type switches; one for primary adjustment and the other for vernier adjustment, giving approximately three volt step-ups. Thus, positive repeat voltage control is assured. This arrangement also eliminates sliding contacts which arc and frequently burn out under load. Pyrotran switches, made with ceramic housings, have silver plated contacts for long service.

The Pyrotran is provided with a heavy-duty rubber covered input cable, and has twin plug outlet receptacles for connecting both a hemispherical jacket and cover on two hemispherical units at the same time and at the same power. A red signal light shows when transformer is in operation. An easily replaceable fuse is provided to protect the instrument. Each Pyrotran is fully insulated and is tested to five times the maximum working voltage to insure safe operation.

A Weston pyrometer is built into the Pyrotran to indicate operating temperature up to 400° C. A red line indicates maximum operating temperature for heating jackets under all conditions. An iron-constantan fixed resistance wire lead, encased in a woven glass-impregnated sleeve is installed to the Pyrometer, with an "AN" type iron-constantan plug at the other end for hooking up to Gyco heating jackets. (This plug may be removed for use with any jacket not equipped with an "AN" type plug.)

EG-100 GYCO Pyrotran, complete as described
above \$75.00



GYCO Instruments are distributed exclusively by

SCIENTIFIC GLASS APPARATUS CO., INC.
BLOOMFIELD, NEW JERSEY

When inquiring specify CP A4828 — see handy form pages 2-3

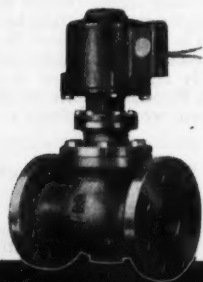


Take it easy, brother. Don't yell. There's no need to shout or even do anything to stop the flow in fuel and process lines when they are protected by

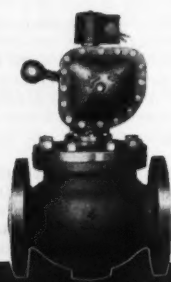
ASCO Safety Shut-off Valves (Factory Mutuals Approved)

Perhaps you have an oil or gas burner operating in a rather hazardous location and want an automatic cut off... or your process lines are carrying fluids (liquid or gas) which if allowed to flow after trouble has developed could cause an explosion... or you are operating vital and expensive equipment which should not continue running if, for example, the lubricating system failed... these are the spots for "Factory Mutuals Approved" ASCO SAFETY SHUT-OFF VALVES. They stop the flow instantly and automatically.

Don't leave the shutting down of lines to the alertness of operators. On every line, use the automatic—electrically operated valves. We have a complete line of such solenoid valves from which to select. Write us in detail concerning your requirements.



Bulletin 8010 — packless, used with push button reset relay for remote manual resetting. Factory Mutual approved.



Bulletin 8020 — free handle manual reset, safety shut-off valves for air and non-corrosive gas. Factory Mutual approved.

We also manufacture a quality line of Automatic Transfer Switches, Remote Control Switches, Contactors and Relays

Automatic Switch Co.

41 EAST 11th STREET

NEW YORK 3, N. Y.

When inquiring specify CP A4829 — see handy form pages 2-3

Instruments

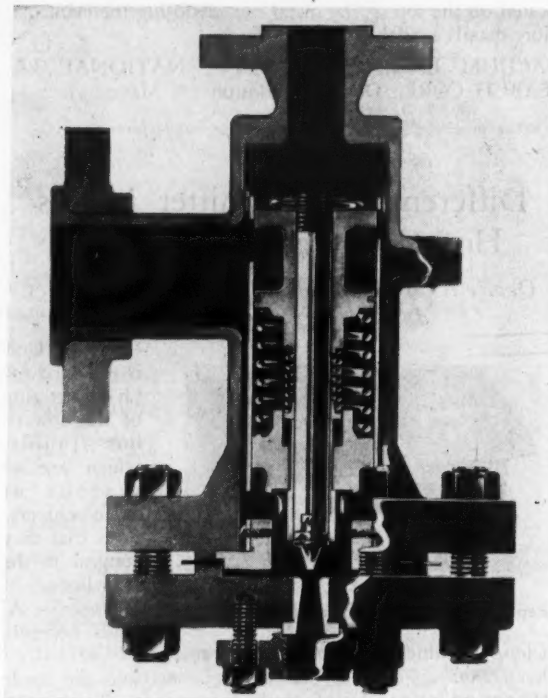
Recirculating Valve Aids Centrifugal Pump Operation

Eliminates pump failures caused by insufficient flow of fluid through pump

Uses — Valve may be applied to any centrifugal pump to eliminate pump failures resulting from insufficient flow of fluid through the pump, causing overheating and destruction of the pump. Insufficient fluid flow arises from failure of fixed recirculating orifices, failure of prime mover to drive the pump at sufficiently high speed or to restrictions in the discharge piping.

Features — Full pump protection is provided throughout full range of capacity.

Description — The system consists of an automatic recirculating valve operated from the fluid flow and designed to



Recirculating valve is easily installed in existing pump piping by-pass the minimum quantity of fluid required to eliminate pump overheating. As the quantity of fluid passing through the pump increases the by-pass quantity is automatically throttled and is reduced to zero when the output of the pump is sufficient to prevent pump failure. Valve may be installed in existing pump piping merely by removing any convenient elbow in the discharge piping upstream of all checks and stops. With little or no flow through the pump, the by-pass is wide open, recirculating enough fluid to prevent overheating. If the discharge rate starts to increase, the plug of the automatic recirculating valve approaches its seat, decreasing the quantity of fluid recirculated. When the flow through the discharge line is of sufficient magnitude to prevent overheating of the pump, the by-pass valve closes tight, allowing all of the pump output to pass through the discharge line. On decreasing flows, the above cycle is reversed.

HAMMEL-DAHL CO., Dept. CP, 243 Richmond St., Providence, R. I.

* When inquiring specify CP A4830 — see handy form pages 2-3



long stem

KETTLE and TANK THERMOMETER
for varnish, oils, milk, jams, food, etc.

These red-reading mercury thermometers have metal cases and flat glass fronts. Temperature ranges from 30° up to 750° F, or equivalent centigrade. They are permanently accurate and will withstand all normal hazards of industrial service.

Other items in the H-B line include thermostats, relays, thermoregulators, hydrometers and many other types of thermometers. H-B Instrument Company, 2510 No. Broad St., Philadelphia 32, Pa.

STEM LENGTHS
12"
24"
30"
36"
48"
60"
72"

THEMOMETERS • THERMOSTATS • RELAYS
THERMO-REGULATORS • HYDROMETERS



When inquiring specify CP A4831 — see handy form pages 2-3

Steinlite is FAST In Making Moisture Tests

Speed is an important factor in moisture testing... and the Steinlite moisture tester is fast. An experienced operator can make a test in one minute — almost any operator in 2 or 3 minutes. All you do is weigh out a sample — pour it into the hopper, press a button, compare the meter reading with a conversion chart, and you have the answer.

Special 40 gr.
STEINLITE
One Minute
Moisture Tester



Steinlite operates on the radio frequency impedance principle, and is calibrated against the official oven method for each product. It is economical to operate... consuming no more electricity than a 40-watt bulb. It is successfully used on grain, pop corn, nuts, cocoa, dehydrated eggs and scores of other products. Sold on 10-day free trial basis. No money down.

SEEDBURO

EQUIPMENT COMPANY

667 Brooks Building Chicago 6, Illinois

When inquiring specify CP A4832 — see handy form pages 2-3

Instruments

Remote Bulb Thermostat
Controls Temperatures
Accurately
Range —120° F. to 600° F.



Thermostat with remote bulb

Uses — Designed for many industrial applications this unit meets the requirements of accurate temperature control over a narrow calibrated range.

Features — Assembly has an unvarying and rapid expansion and contraction per degree of temperature change and can be adjusted by either knob and pointer with calibrated dial, or by screw driver.

Description — Type O thermostat is the remote bulb type. It can be used for all liquids or gases non-injurious to brass, or for metal to metal applications and can be equipped with ambient temperature compensation. Thermal assemblies can be plated or supplied in stainless steel for applications injurious to brass. Control is based on a snap-action switch actuated by a solidly liquid-filled copper thermal assembly. The calibrated adjustments cover any 120° or 250° F. in the range from — 120° F. to 600° F., and screw driver adjustments cover entire ranges from — 120° F. to 180° F., from 40° F. to 350° F., or from 50° F. to 600° F. Four bulb types, designed to provide most efficient operation for the particular installation, are available.

UNITED ELECTRIC CONTROLS CO.,
Dept. CP, 69-71 A St., Boston 27, Mass.

When inquiring specify CP A4833
— see handy form pages 2-3

For more information on product at right, specify CP A4834
... see information request blank between pages 2-3.

USE PYREX PIPE for
1. VISIBILITY
2. CORROSION RESISTANCE
3. PURITY MAINTENANCE

Up to 250°F in

GLASS PIPE...

PYREX brand Glass Pipe will withstand operating temperatures as high as 250° F and temperatures up to 400° F can be considered. Furthermore, PYREX brand glass has remarkable ability to withstand sudden temperature changes.

Its resistance to thermal shock makes it possible to flush Pyrex Pipe Lines with live steam immediately followed by cold water—a procedure often followed as a cleaning process. It is one of many reasons which make *PYREX Pipe practical plant equipment*.

It is the only pipe that possesses the combined advantages of corrosion resistance, visibility and purity maintenance. Its sturdiness and serviceability have been thoroughly proved by miles of pipe lines that have been in plant service for many years. You can install it with confidence.

Pyrex Pipe Characteristics

VISIBILITY. The crystal clear transparency of PYREX Pipe permits visual inspection of every foot of your pipe line at any time. This feature serves to forewarn you of unexpected trouble in your pipe lines.

MAINTAINING PRODUCT PURITY. PYREX Pipe is resistant to all acids (except H.F.) and moderate alkalis. There is no heavy metal pick-up or danger of metallic contamination. PYREX Pipe lines assure the ultimate in obtaining product purity.

EASE OF INSTALLATION. Your own men can install a PYREX Glass Pipe Line. No special tools or special training are required. The Pipe, the fittings and the hardware come to your installation point ready for assembly. Stock adaptor flanges are available to connect PYREX Pipe to metal pipe and other plant equipment.

SIZES AND FITTINGS. PYREX Glass Pipe is now available in 1", 1½", 2", 3", and 4". A complete line of standard PYREX fittings includes elbows, tees, return bends, laterals and reducers. Special fittings can be readily made to your specifications.

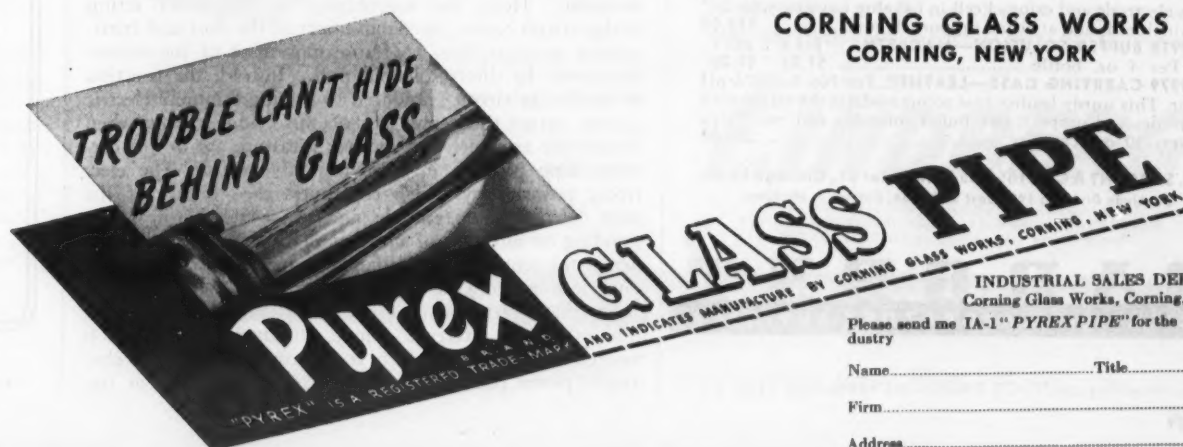
Standard fittings and adaptor connections are available to connect PYREX Pipe to your present equipment.

LOW COST. The initial cost of PYREX Pipe (accessories included) is about the same or less than the cost of full weight copper or brass piping in comparable sizes, and is considerably less than the cost of most other corrosion resistant alloys. Whether you figure costs of new equipment in terms of initial outlay or in terms of overall costs—spread over the length of service it will give you—PYREX Pipe is your best bet.

OPERATING PRESSURES. Most installations operate at pressures up to 50 p.s.i.—but pressures as high as 100 p.s.i. can be considered.

Corning Engineers will gladly furnish you with complete details. Write to Industrial Sales Department CP-7.

CORNING GLASS WORKS
CORNING, NEW YORK



INDUSTRIAL SALES DEPT., CP-7
Corning Glass Works, Corning, New York
Please send me IA-1 "PYREX PIPE" for the Process Industry

Name.....Title.....

Firm.....

Address.....

MACBETH pH METER

★ Line Operated ★ Direct Reading
★ Continuous Indicating



NO BATTERIES USED—The meter can be left on indefinitely for continuous pH indication—No worry about battery failure.

SIMPLIFIED OPERATION—Only one adjustment is necessary to operate the meter. Simple operating procedure is printed on the meter plate.

DIRECT READING—The large, easily read scale is calibrated in pH units from 0 to 14 to 1/10 pH unit.

NEW ELECTRODE ASSEMBLY—Incorporates glass electrode and calomel cell in one compact housing with clamp for attachment to support.

COMPACT UNIT—Sturdily constructed and housed in an aluminum case. Net dimensions of the meter are: Width, 6 3/4 inches; depth, 6 3/4 inches; maximum height, 8 inches. Meter mounting face 45° angle to facilitate reading.

ELECTRODES SUPPORT—Horizontal metal bar attached to the meter case, provides adjustment for the electrode assembly at suitable distance for acid-base titrations. A vertical rod is fitted into the support bar for adjustment of electrode height.

S-29976 pH METER—MACBETH, Line Operated, Continuous Indicating, Glass Electrode. Complete with new electrode assembly with 24" terminal leads; integral electrode support and two standard buffer solutions, pH 4 and pH 7. For operation from 115 volt 50-60 cycle A.C. circuits. **\$125.00**

S-29976A Ditto. But for operation from 230 volt 50-60 cycle A.C. circuits. **\$125.00**

S-29976B pH METER—MACBETH, Only. With integral electrode support but without electrode assembly No. S-29977. For operation from 115 volt 50-60 cycle A.C. circuits. **\$110.00**

S-29976C Ditto. But for operation from 230 volt 50-60 cycle A.C. circuits. **\$110.00**

S-29977 ELECTRODE ASSEMBLY—MACBETH. Consisting of glass electrode and calomel cell in bakelite housing with 24" terminal leads and attached support clamp. **\$15.00**

S-29978 BUFFER SOLUTION—MACBETH. pH 4 pH 7 Per 4 oz. bottle. **\$1.25 \$1.25**

S-29979 CARRYING CASE—LEATHER. For No. S-29976 pH meter. This sturdy leather case accommodates the meter with electrodes and support; two buffer solutions and two Pyrex beakers 50 ml. capacity. **\$25.00**

E. H. SARGENT & CO., 155-165 E. Superior St., Chicago 11, Ill.
Michigan Division: 1959 East Jefferson, Detroit 7, Michigan

SARGENT

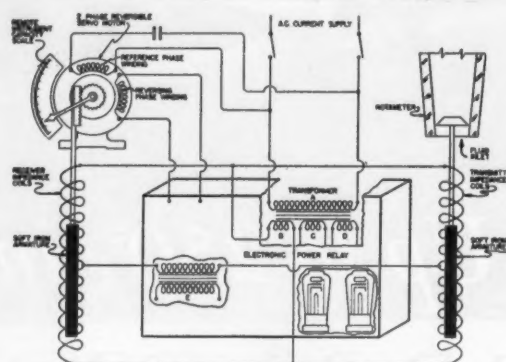
SCIENTIFIC LABORATORY SUPPLIES

When inquiring specify CP A4835 — see handy form pages 2-3

Instruments

Rotatronic Remote Instrument Meters Low as 5 milliliters p.m.

No slide wire used. Indicator pointer traverses whole scale in 3 seconds



Circuit diagram for the null balance servo motor remote transmitting system

Uses — Miniature flow rates as low as 5 milliliters of liquid per minute or 20 milliliters of gas per minute may be measured by this device. Flow rates encountered in laboratory operations and small scale industrial operations such as perfume essences, vitamin additives and synthetic rubber mercaptan modifiers are typical measuring and control applications for this device.

Features — The Rota-tronic has no slide, thus reducing cost and space requirements and furthermore eliminates slide wire corrosion and maintenance. It will operate in any position, does not need accurate leveling and operates well under severe vibration conditions. The indicator pointer can traverse the entire scale from zero flow to maximum flow in only three seconds. A lag between Rotameter float movement and remote instrument positioning is thus scarcely noticeable. This is very important from the standpoint of integrator accuracy since it insures that totalization at the new flow rate will commence practically instantaneously upon change of flow rate.

Description — The unit utilizes an impedance bridge for transmitting flow readings but, unlike the larger Rotameters with direct acting impedance bridge circuits, the transmitter coils are of very small size using very fine wire. The actuating armature attached to the float is also no more than a feather-light fine wire which adds but 250 milligrams to the float weight. A similar set of impedance coils and a similar armature are located in the remote instrument. Here, the resemblance to the direct acting bridge circuit ceases, since movement of the float and transmitting armature does not cause movement of the remote instrument by direct solenoid pull. Instead, the function of the bridge circuit is reduced to passing a minute electric current across the center leg of the bridge circuit when transmitter armature and receiver armature are not in corresponding position in their respective coils. The electronic power relay which constitutes the "brain" of the unit detects the magnitude and phase relationship (depending on direction of unbalance) of the current flowing across the center leg, amplifies it and uses it to control the energization from an independent power source of the "reversing" phase winding of a two phase servo motor. The other, or "reference" phase, winding of the motor is energized by current which is not controlled by the electronic power relay and will have either a leading or lag-



Legible Accuracy

WESTONS... are easy to read even in difficult locations

Not only are WESTON thermometers inherently accurate over the entire scale but their gauge-type dials with bold figures and divisions can be read easily... without error or guesswork... even in dim light or when mounted in difficult-to-get-at locations.

Their all-metal construction, too, enables them to maintain their dependable accuracy over long periods, despite vibration or subjection to temporary over temperatures. There are no vital parts to break or leak, nothing under pressure.

WESTON thermometers are available in types, sizes and stem lengths for equipment mounting, as well as for all industrial and processing requirements. Ask for Bulletin Weston Electrical Instrument Corporation, 611 Frelinghuysen Avenue, Newark 5, New Jersey.

Weston All Metal THERMOMETERS

When inquiring specify CP A4836 — see handy form pages 2-3

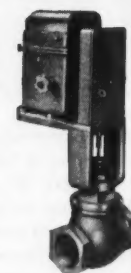
BARBER-COLMAN

MICRO SYSTEM FOR PROCESS CONTROL



MICROTHERM

By using a solenoid-loaded contact tongue, with the pull of the solenoid governed by a rheostat on the valve motor shaft, the Microtherm is able to position the Proportioning Valve so as to satisfy exactly any change in demand. Features include simple construction, no relays, and maximum power at all points of valve stroke. "Hunting" is eliminated and the valve is positioned quickly with "micrometer accuracy." Write for Bulletin "CONTROLS FOR INDUSTRY."



PROPORTIONING VALVE

BARBER-COLMAN COMPANY

1203 ROCK ST. • ROCKFORD, ILL.

When inquiring specify CP A4837 — see handy form pages 2-3

ing phase relationship respective to the "reversing" phase, depending on the direction of the impedance bridge unbalance caused by Rotameter float movement. Thus the motor will run either clockwise or counter-clockwise and, being attached to the receiver armature (as well as to the indicator pointer or the recorder pen), will reposition it till the bridge circuit is in balance and no current flows across the center leg. The servo motor is amply powerful to drive any and all mechanism which may be attached to it with plenty of power to spare. The unit is an electronic null balance instrument in which the Rotameter float position detecting circuit is relieved of all work load and has



Rota-tronic remote flow rate indicator

nothing to do but to detect float position. Any required amount of power can be supplied from an independent power source by suitably selecting the servo motor. Flow may be indicated, recorded, controlled and totalized. Current consumption is 40 watts maximum. Units are available for 110 V., 60 and 50 cycle single phase. 25 cycle equipment on special order. More details are shown in catalog section 52-A which may be had on request.

FISCHER & PORTER CO., Dept. CP, 9E-4, Hatboro, Penna.

When inquiring specify CP A4838 — see handy form pages 2-3

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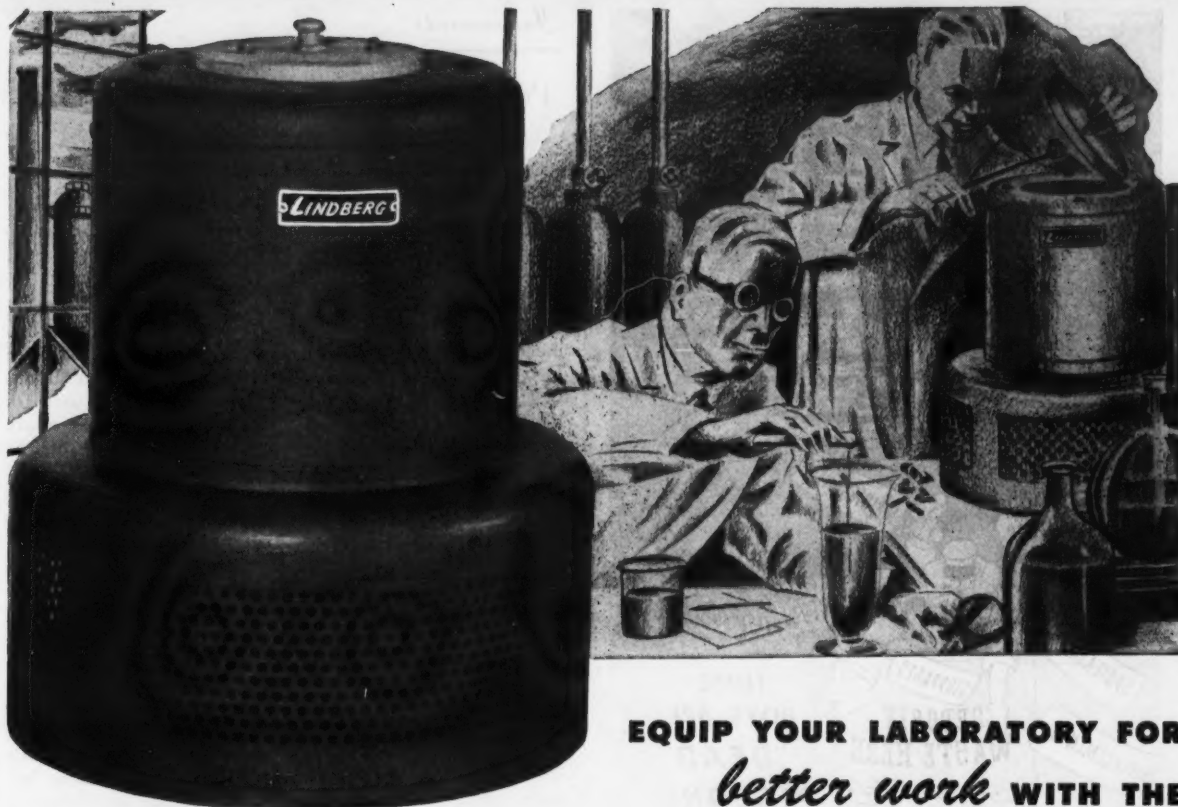
Bulletin Describes Thermostats and Thermoregulators

Information on mercurial thermostats and adjustable thermo-regulators will be found in a 12-page catalog. Also included is complete data on relays, designed as companion instruments to thermostats and thermoregulators, but readily adaptable to many other important applications. Of special interest is the "Magna-Set", an adjustable thermoregulator with simplified magnetic micro-meter control which permits changes of as slight as .0050° C. in operating temperature and which will control a correctly designed constant temperature bath to within .02° C. of the desired temperature. Request bulletin T.

PRECISION THERMOMETER & INSTRUMENT CO., Dept. CP, 1404 Brandywine St., Philadelphia, Pa.

When inquiring specify CP A4839 — see handy form pages 2-3

JULY-AUGUST, 1946



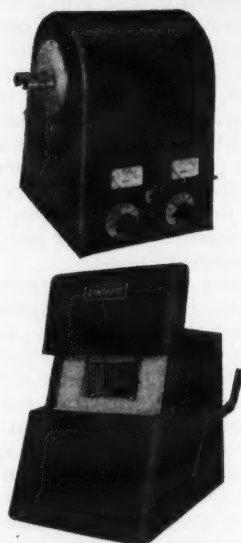
EQUIP YOUR LABORATORY FOR *better work* WITH THE **LINDBERG POT-CRUCIBLE FURNACE**

This new furnace of advanced design has a twofold laboratory usefulness for heats up to 2000° F. that should interest every technician.

As a pot furnace it does salt or lead bath immersion tempering, hardening and annealing, cyaniding and aluminum heat-treating.

On the other hand it is also a crucible furnace for determining critical points of steel, melting base metals, thermocouple calibration and many other necessary laboratory requirements.

The other advanced Lindberg Laboratory Furnaces illustrated are the Combustion Tube Furnace for fast carbon and sulphur determinations with a temperature range up to 2500° F. and the Box Furnace for chemical analyses and metallurgical tests requiring heats up to 2000° F.



These practical, carefully designed and compact Lindberg Laboratory Furnaces are handled by your laboratory equipment dealer. Call him today and arrange to see them or ask for full information about how they can benefit you.



SOLD EXCLUSIVELY THROUGH LABORATORY EQUIPMENT DEALERS

LINDBERG ENGINEERING COMPANY
2450 WEST HUBBARD STREET • CHICAGO 12, ILLINOIS

LINDBERG

WELL KNOWN THROUGHOUT THE WORLD AS
LEADERS IN DEVELOPING AND MANUFACTURING
INDUSTRIAL HEAT TREATING EQUIPMENT

When inquiring specify CP A4840 . . . see information request blank, pgs. 2-3



Here's the Reason--
CASH STANDARD
Streamlined TYPE 1000
 PRESSURE
REDUCING VALVE

• Installation of this CASH STANDARD "1000" is a blow that knocks these trouble makers and cost raisers stiff and cold . . . permanently. When the CASH STANDARD "1000" goes to work, you immediately get good streamlined valve performance with good cost savings . . . for years.

Maximum Capacity When Needed Most • Accurate Pressure Control Under Toughest Working Conditions
 Trouble-Free Service • Smooth Operation • Tight Closure • Accurate Regulation • Speedier Production Results • Elimination of Failures • Constant Delivery Pressure • Cost Saving Operation • No Spoilage • Practically Zero in Maintenance Costs



Send for a copy
 of Bulletin 962

A. W. CASH COMPANY
 DECATUR, ILLINOIS

When inquiring specify CP A4841 — see handy form pages 2-3

Instruments

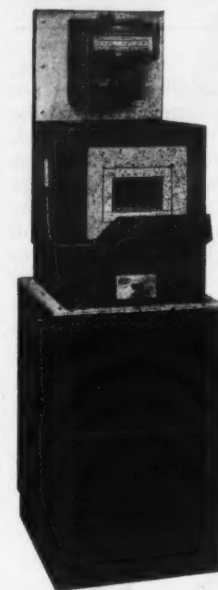
Potentiometer — Pyrometer Uses No Galvanometer or Millivoltmeter

Operates from conventional thermocouples or radiation thermocouples. Interchangeable sub-assemblies standardized for easy maintenance

Uses — This indicating, recording and controlling instrument operates from a thermocouple or from any source of D-C potential which varies through at least 10 millivolts full scale range. Conventional thermocouples are used for temperatures up to 3000° F. For temperatures above 3000° F. and for moving objects above 1500° F. radiation type thermocouples are used.

Features — The electronic potentiometer-pyrometer has no continuously moving or vibrating parts in its measuring circuit and records one or two temperatures on a 12" diameter uniformly graduated chart and indicates on a 29" bold scale which encircles the recording chart. Trouble-free service and a minimum of maintenance are insured by the elimination of galvanometers, millivoltmeters and all continuously moving or vibrating mechanisms from the measuring system. Only the recording chart moves continuously. This instrument is said to be an effective controller for temperature since its inertia free electronic detection and high speed motor system instantly respond to keep the measuring circuit in continuous balance. Its accuracy, stability and permanence of calibration are credited to the use of the null balance principle. A single unit may be furnished with two controllers operating from two entirely separate measuring circuits all housed in the same recorder casing. This arrangement permits double the number of recorder controllers to be included in a given panel space. Recorders are made up of a number of interchangeable sub-assemblies standardized so that only a few spare parts need to be carried in stock to provide replacement parts for a large number of electronic instruments. Both the electronic amplifier unit and the a-c d-c converter are mounted in die-cast housings which plug into the rear of the recorder casing.

Description — The d-c potential of the thermocouple or other primary element is balanced against a conventional potentiometer circuit employing the usual battery source of d-c voltage and a standard cell with manual standardization. Instead of galvanometer or millivoltmeter the instrument circuit employs a d-c to a-c converter and an electronic detector, to measure potentiometer unbalance. A reversible electric motor which drives the indicating, recording, and controlling features moves only when the potentiometer network tends to become unbalanced because of a change in the factor being measured. Conversion of d-c potential to a-c is accomplished by special saturable core reactors which are similar in construction to transformers in that they contain no moving or vibrating parts. Recorder-controllers are furnished for air-operated control systems, on-off electric control systems and throttling type electronic control systems. The instrument is equipped with a control dial by which the set point may be manually adjusted to any desired temperature. This arrangement is used for the on-off electric and throttling electronic type controls. Air-operated control systems are provided with an indicating pointer which uses the recording chart as a scale for indication of the set point. The set point may be changed by simply opening the meter door and turning a convenient knob. Operation is from 115 volt, 50 or 60 cycle AC power supply. A 16-page Bulletin No. 232, "Bailey Pyrotron Electronic Potentiometer Pyrometer" de-



Also available as table model with O.D. of 18" x 32" x 20 1/2". Complete with automatic control — \$390.00

NEW HUPPERT "HI-TEMP" FURNACE

for Precision
 Laboratory Work

- Maximum operating temperature 2200° F.
- Hair-line automatic temperature control.
- Special multi-insulation — no heat loss.
- High temperature alloy elements.
- All-steel, heavy-duty construction.
- Operates 110 V. AC — current consumption 2 KW.
- I.D. 5 3/4" x 3 3/4" x 6".
- O.D. 18" x 63" x 22".
- Completely wired, ready to operate — merely connect line outlet box provided.

"Hi-Temp" Furnace complete with automatic control and base — \$440.00

For 220 V. operation, add \$30.00 to above price.

K. H. HUPPERT CO.

6822 Cottage Grove Avenue,

Chicago 37, Illinois

When inquiring specify CP A4842 — see handy form pages 2-3



These are the original electric liquid level controls, pioneered by us in 1933. They have no floats — no vacuum tubes — no moving parts in the liquid. They control variations of levels of 1/4" or more, and are not affected by pressures, temperatures, acids or caustics. Relay can be located any distance from the electrode. Special ice free electrodes where necessary.

WRITE FOR CATALOG

New CATALOG 145-A contains complete technical descriptions of the many types available, together with wiring diagrams for various installations. Get full information on B/W controls. WRITE FOR YOUR COPY TODAY!

B/W CONTROLLER CORPORATION

2204 E. Maple Road, Birmingham, Mich.

When inquiring specify CP A4843 — see handy form pages 2-3

CHEMICAL PREVIEW

Instruments

scribes and illustrates various indicating, recording and controlling combinations, gives performance data, and outlines principle of operation. Available on request.

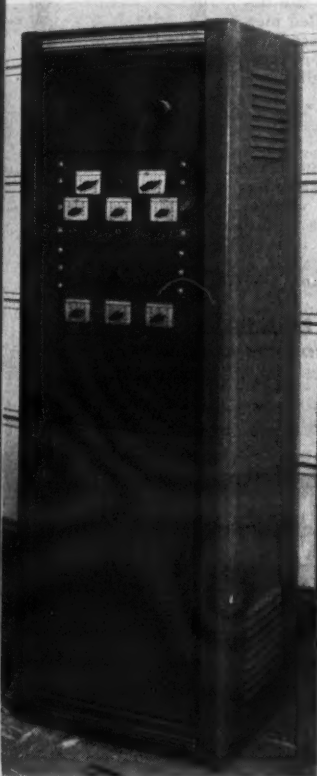
BAILEY METER COMPANY, Dept. CP, 1050 Ivanhoe Road, Cleveland 10, Ohio.

When inquiring specify CP A4844 — see handy form pages 2-3

★

Electronic Mill Feed Control Provides Stepless Speed Range

Use assures more positive control of finished product fineness



Uses — Wherever grinding or pulverizing mills are employed in the cement, lime, ceramic, chemical, drug, cosmetic, food, paint and varnish industries this equipment is applicable.

Features — This electronic control improves the efficiency, output and performance of tube, ball, bowl and other types of grinding mills. In power plants employing pulverized coal for direct firing, its use results in an increase in boiler efficiency. In cement plants, its use assures more positive control over the fineness of the finished product. In still other applications it makes possible operation of the mill at peak efficiency, increased production, controlled fineness of grind or otherwise

Electronic unit controls mill feeder motor speed

better coordination of the grinding operation with production requirements.

Description — Equipment consists essentially of a load detector external to the mill and connected directly to the electronic equipment which is contained in a 66" high floor-mounted, self-supporting steel cabinet. A circuit from the electronic equipment in this cabinet supplies a variable speed, direct current, feeder drive motor. The circuit between the load detector and the feeder is direct and entirely electronic. No relays, moving parts or mechanical speed change equipment is involved. Response is instantaneous and direct. The speed of the feed motor is controlled precisely and continuously throughout a stepless range and without lag, cycling, intermittent action or over and under "hunting". Complete information is available on request.

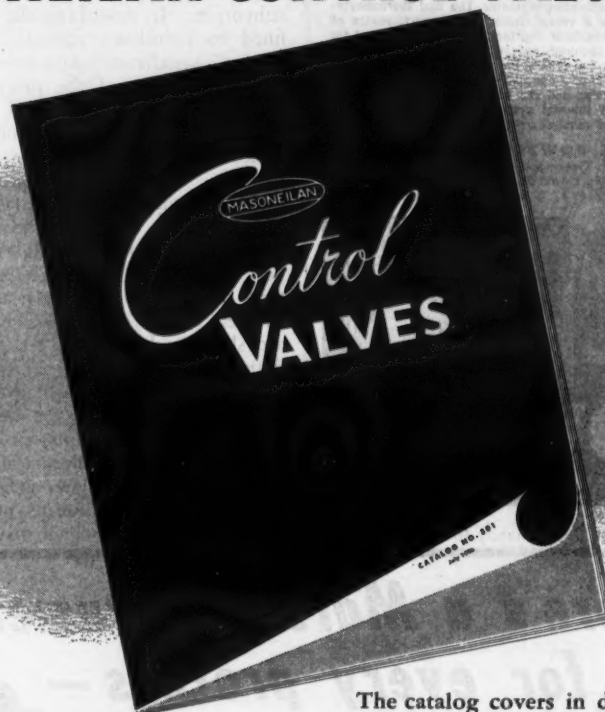
GAI-TRONICS CORP., Dept. CP, 1417 K. St., Washington, D. C.

When inquiring specify CP A4845 — see handy form pages 2-3

JULY-AUGUST, 1946

Announcing...

THE NEW MASONEILAN CONTROL VALVE CATALOG



This new Masoneilan Control Valve Catalog contains complete factual information and covers every phase of control valve selection including C_v . . . Valve Flow Coefficient . . . which is a basic means for comparing flow capacities and characteristics.

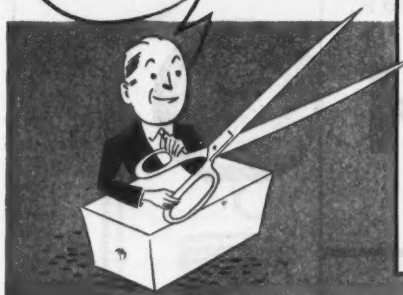
The catalog covers in detail such essential information as control valve flow characteristics, flow coefficient and flow curves, materials and construction, selection of types, handwheels, dimensions, weights and other specification data. Write for your copy of this important catalog today.

MASON-NEILAN REGULATOR COMPANY

1203 ADAMS STREET  BOSTON 24, MASS.

Main Office: Boston 24, Mass.

CLIP
AND MAIL FOR
YOUR COPY
NOW!



MASON-NEILAN REGULATOR COMPANY

1203 Adams St., Boston 24, Mass.

Gentlemen: Please send me your new CONTROL VALVE CATALOG.

Name.....
Position.....
Firm.....
Address.....
City..... State.....

When inquiring specify CP A4846 . . . see information request blank, pgs. 2-3

**EASY TO READ
DIAL
THERMOMETER**

**Economize WITH POWERS
TEMPERATURE REGULATORS**

Use a Powers No. 11 Temperature Indicating Regulator when you want the advantages of an easy-to-read dial thermometer combined with a dependable self-operating regulator. The dial thermometer gives a visual check on the performance of the regulator and makes it easy to adjust for the required operating temperature. Various dials and ranges are available.

Is Easy To Install—because both the thermometer and the regulator operate from the same thermal system—only 1 tapped opening is required. Write for Circular 2511. (71P)

THE POWERS REGULATOR CO.
2769 Greenview Avenue, Chicago 14, Illinois
231 East 46th Street, New York 17, New York
Offices in 47 Cities... See your phone directory.

POWERS

OVER 50 YEARS OF AUTOMATIC TEMPERATURE AND HUMIDITY CONTROL

CONTROLS HEATING OR COOLING MEDIUMS

When inquiring specify CP A4847—see handy form pages 2-3

Instruments

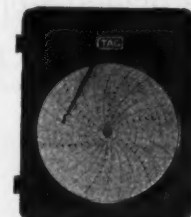
Instrumentation for the Fluid Catalytic Cracking Process

This bulletin reintroduces a series on the subject of various instrumentation applications with a description of the process included. Much of the information contained in the one on the Fluid Catalytic Cracking Process was restricted during the war years. Fluid Catalytic Cracking has a number of varied applications other than petroleum refining, these include ore reductions, coking of coal, manufacture of water gas and production of phthalic anhydride. In describing the process, discussions are confined to petroleum refining, since the majority of "cat cracker" installations have been made in this industry. The primary purpose of the process is to "crack" or decompose the molecules of the oil charge, thus yielding greater quantities of the lighter, more volatile hydrocarbon components. These form the base stock for high-octane rated gasoline. Other important products derived are: isobutane, olefin raw materials, butylenes, light gas oil, heavy gas oil and bottoms. A detailed description of the process equipment is given which includes turbo-blower, air-preheater, heat exchanger, furnace, reactor, fractionator and regenerator. The operation of each and its function is completely covered. Flow sheet diagrams of the overall operation are shown. Basic data on the process are supplemented with instrumentation application information. Charts and text cover the instrumentation applications fully. Three pages of the booklet are devoted to the description of purging of metering lines in the measurement of pressure, differential pressure, flow and liquid level. This information is useful to anyone who may have the problem of applying measuring means to media containing corrosive materials or solids which may obstruct connecting piping.



GIVE YOU ACCURACY

★ When you install a recorder in your plant, you do it to obtain an accurate record of temperature or pressure. TAG Recorders are part of an all-inclusive line of industrial instruments, all of which are designed and built by skilled men whose know-how is based on years of instrument experience. TAG Recorders are right!



SPECIFICATIONS

Temperature Recorders are available in Vapor Tension type, ranges between -20° and $+500^{\circ}$ F.; Gas-filled type, -100° and $+800^{\circ}$ F.; Mercury type, -40° and $+1000^{\circ}$ F. Pressure Recorders are available in ranges between limits of 30" vacuum and 7500 lbs. pressure. All TAG Recorders are furnished in handsome, rugged cases, with 9, 10 or 12 inch easy-to-read charts.

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PORTABLE PRODUCTS CORPORATION

541 PARK AVENUE BROOKLYN 5, N. Y.

When inquiring specify CP A4849—see handy form pages 2-3

There's a Marsh instrument for every process—

**PRESSURE GAUGES
OF ALL TYPES**

The Mastergauge, illustrated above, is standard bearer for the broad Marsh line of pressure, vacuum, and compound gauges. It represents Marsh accuracy and stamina in its highest development.

The Marsh Diaphragm Gauge, opposite—used where the pressure medium cannot be permitted to enter the bourdon tube—is typical of many special types of gauges.

Whatever the need, there is a Marsh pressure gauge or dial thermometer that will meet it... better. Try Marsh instruments where others have failed. The tougher the application the more welcome the opportunity to demonstrate Marsh accuracy and stamina!

Every range of pressure is covered by Marsh Gauges. Every service condition—such as pulsating pressure, or excessive vibration—is met by special types of movements. Every pressure medium is provided for by the range of materials available in bourdon tubes. The Marsh line of Dial Thermometers is equally comprehensive. It includes both bi-metal and bourdon tube types for practically all temperature ranges.

Marsh engineering service assures proper use of Marsh instruments. Ask for recommendations covering your requirements.

JAS. P. MARSH CORPORATION
2095 Southport Ave., Chicago 14, Ill.

MARSH



**DIAL
THERMOMETERS FOR
EVERY PURPOSE**

Practically all service conditions and temperature ranges are covered by Marsh Dial Thermometers. A typical bi-metal type is shown at the right below, and a distant reading thermometer of the bourdon tube type is illustrated at the left.

Quickly Accurately MEASURES POTENTIAL WEAR RESISTANCE



The TABER ABRASER surface-tests ... paint - textiles - leather - rubber

This fast, scientific method for measuring resistance to surface abrasion reveals the pertinent facts in a matter of minutes. Eliminates time-consuming, expensive performance tests. Used by hundreds of manufacturers for determining surface wearing qualities of paint, lacquer, plastics, leather, rubber, paper, metals, etc.

YOURS on request—Manual explaining fully the Taber Method and the reasons why it pays to pre-test. (Also included—brochure on stiffness and resilience testing with the Taber V-3 Stiffness Gauge.)

TABER INSTRUMENT CORP.
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The Taber Test Proves What Wears Best

When inquiring specify CP A4850—see handy form pages 2-3

When inquiring specify CP A4848... see information request blank, pgs. 2-3



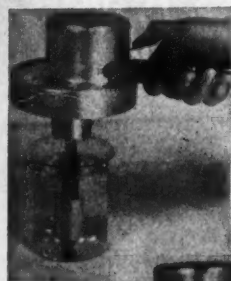
if it's a BROOKFIELD SYNCHRO-LECTRIC VISCOSIMETER

Making Viscosity tests at point of process is a snap with the Brookfield Viscosimeter. All you need is a convenient electrical outlet and you're set to take readings of high accuracy in 30 seconds.

Readings given directly in centipoises over wide ranges. Temperatures up to 600° F. No adjustments necessary. Requires no technical skill.

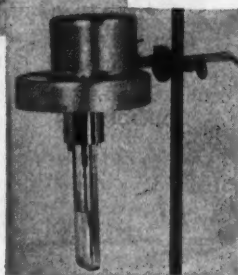


PORTABLE!
USE IN PLANT OR LAB



Same instrument can be used in both plant and lab. Use as a portable instrument shown at left. Operates on 60 cycle 110 volt current.

When instrument is needed for stationary use only it may be mounted on a rod clamp as shown at right. Handles are interchangeable.



BROOKFIELD
ENGINEERING LABORATORIES
BOX 603-P, SHARON, MASS.

When inquiring specify CP A4851
— see handy form pages 2-3

Instruments

Twenty-three pages of factual data and diagrams give a clear picture on the subject of instrumentation for the fluid catalytic cracking process. Copies of this booklet No. Oil-M-2 are available on request.

THE BROWN INSTRUMENT CO., Dept. CP, 5060 Wayne Ave., Philadelphia 44, Penna.

When inquiring specify CP A4852 — see handy form pages 2-3

Rotameter Lighting Device Assures Accurate Readings

Easily installed. Unit directs light through glass toward operator

Uses — This lighting device may be installed on Rotameters that are located in poorly lighted places.

Features — Use of the lighting attachment assures easy, accurate readings. Rotor and scale are clearly outlined even when the metered fluid is semi-opaque in character.

Description — The device, a baked-enamel metal hood with narrow frontal opening, fits snugly against the back



Rotameter light uses standard 110 V. tubular lamp of the Rotameter tube and directs a beam of light through the glass toward the operator. Unit can be easily attached to any SK 250 mm. length Universal Rotameter by means of a bracket furnished with each device. Push-button socket 10 foot rubber-covered attachment cord and plug are included. It uses a 110 volt tubular incandescent lamp which may be obtained from any electrical supplier. Further details may be secured on request.

SCHUTTE & KOERTING CO., Dept. CP, 12th & Thompson Sts., Philadelphia 22, Penna.

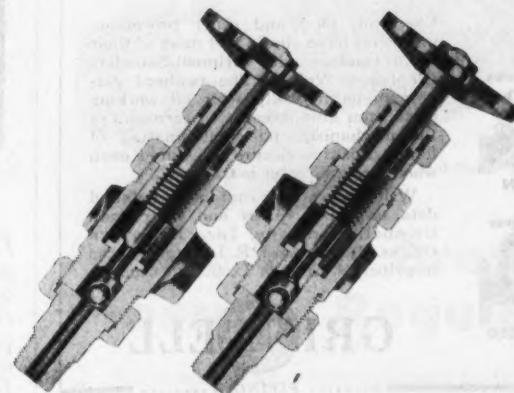
When inquiring specify CP A4853 — see handy form pages 2-3



VALVES

... for Your Liquid Level Gages

... for Your **JERGUSON GAGES**



The words "& Valve" in our company name were not included just to make the name longer and more imposing. They cover an important division of our business . . . the design and manufacture of valves for gages for all liquid level indicating requirements.

Ever since we began to make gages years ago, we realized that the valves were as important as the gages themselves. We have put just as much engineering thought and manufacturing skill into our valves as into our gages.

Jerguson Valves are the ones to buy . . . for any liquid level gage installation. Always order them when ordering your Jerguson Gages. You can obtain any type valve desired: plain, automatic-closing, quick-closing, jacketed, offset.

We make gages and valves of any metal required to meet specific corrosive conditions. Valves are furnished with any type and size of connections required.

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TULSA 12, OKLA.
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When inquiring specify CP A4854 — see handy form pages 2-3

Grinnell-Saunders DIAPHRAGM VALVES



UNIQUE DIAPHRAGM FEATURE

... isolates working parts

... protects parts against
corrosive fluids

... protects fluids
against contamination



OPEN



CLOSED

Chemical, food and other processing industries have eliminated most of their valve troubles with Grinnell-Saunders Diaphragm Valves. The resilient diaphragm hermetically seals off working parts from fluid stream. No corrosion of the mechanism—no contamination of fluids. Positive closure is assured even when foreign matter is trapped.

Write for catalog containing detailed data on these valves and their uses. Grinnell Company, Inc., Executive Offices, Providence 1, R. I. Branch offices in principal cities of U. S. and Canada.

GRINNELL

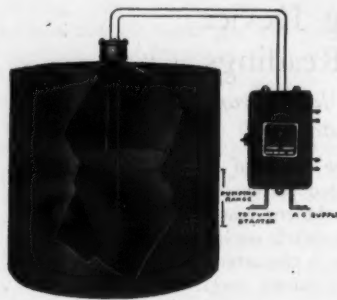
WHENEVER PIPING IS INVOLVED

When inquiring specify CP A4855—see handy form pages 2-3

Instruments

Level Control Has no Floats No Vacuum Tubes

*May be applied to all electrically conductive liquids.
Terminals on unit permit it to be matched to
specific resistivity of material*



Series 10 level control

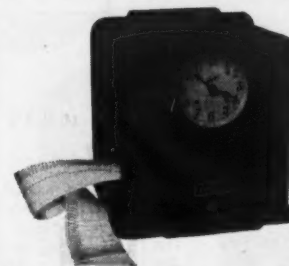
Features — Contact with the liquid is made only by a stainless steel probe rod (there are no floats, bellows, seals, or stuffing boxes). With alternating current in the probe circuit, no electrolytic action is possible. Mica insulated probes prevent leakage. Contains no vacuum tubes and operates with low voltage in the probe circuit.

Description — Stainless steel probe rods are suspended into the tank from the probe fittings. The liquid to be con-

Uses — This device is applicable to liquid level control of all electrically conductive fluids. It is recommended for level control problems of water, milk, beer, ammonium chloride, copper nitrate, sulphate, sodium chloride, potassium hydroxide and many other acids, bases and salts.

CHEMICAL PROCESS TIMING

Faster, Better, Cheaper



THE NEW

Simplex

PRODUCTOGRAPH

Records on tape the STARTS and STOPS of each machine. Designed to indicate the duration of speed, weight, pressure, or flow as expressed in time units.

Present conditions make Simplex Productographs an incentive to both increased production and lower costs.

MAY WE SEND YOU OUR BULLETIN

"FACTS BEHIND PRODUCTION"?

SIMPLEX TIME RECORDER CO., GARDNER, MASS., U.S.A.

When inquiring specify CP A4857—see handy form pages 2-3

Sheldon

LABORATORY EQUIPMENT



Typical Laboratory

SHELDON'S long, continuous, and successful experience; efficient planning service, and unsurpassed production facilities combine to provide the utmost in utility and economy in Laboratory Equipment. Let SHELDON Planning Engineers help you plan your research and control Laboratories.

SHELDON'S new Industrial Catalog for Chemical and Physical Laboratory, X-ray, Metallographic and Dark Room Fixed Equipment is now on the press. Reserve your copy today.

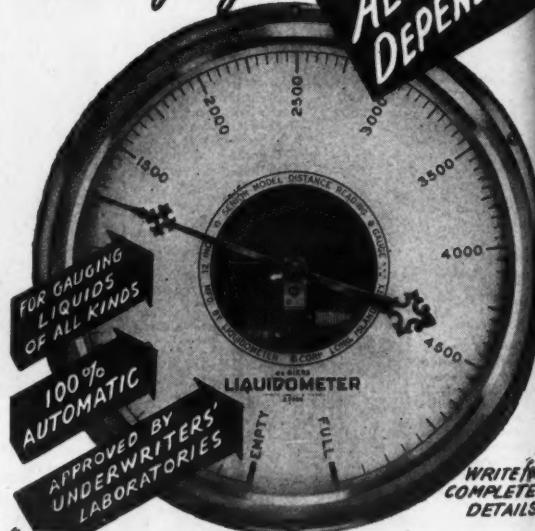
E. H. SHELDON & COMPANY
MUSKEGON, MICHIGAN

When inquiring specify CP A4856 . . . see information request blank, pgs. 2-3

LIQUIDOMETER

Tank Gauges

ALWAYS
DEPENDABLE



FOR GAUGING
LIQUIDS
OF ALL KINDS

100%
AUTOMATIC

APPROVED BY
UNDERWRITERS'
LABORATORIES

WRITE FOR
COMPLETE
DETAILS

"LIQUIDS WORTH STORING ARE WORTH MEASURING"

THE LIQUIDOMETER CORP.

38-18 SKILLMAN AVE., LONG ISLAND CITY, N.Y.

When inquiring specify CP A4858—see handy form pages 2-3

The Trend is to TRENT FOR IMMERSION HEATERS

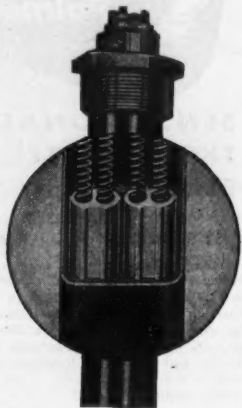
SEAMLESS BRASS or COPPER BLADES (tubes) — rigid, durable, long-lasting. One, two and three blade styles.

NICKEL-CHROME Resistance Wire in high-quality refractory tubes, definitely locating the elements in relation to the metal casing for its entire length.

All free spaces filled with refractory powder by method that assures maximum heat conduction and absence of dead air.

Terminal head welded to blades. Removable outlet box (with or without switch) can be rotated to suit wiring. Heat can be uniformly maintained for entire length of unit or concentrated at selected portions.

MORE UNIFORM HEAT and MORE OF IT. That's the result of TRENT patented construction. . . proven in hundreds of different immersion heater applications. WRITE FOR FULL PARTICULARS.



TRENT

Electrically Heated Industrial Equipment

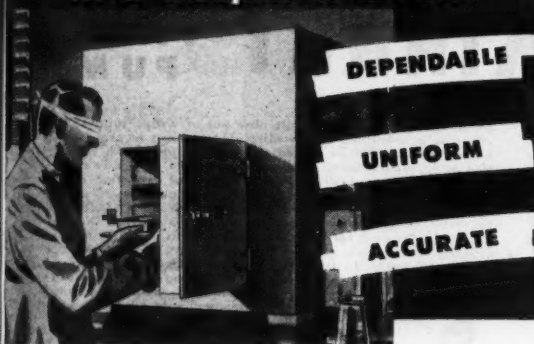
HAROLD E. TRENT COMPANY

FURNACES • OVENS • HEATING ELEMENTS
LAB and SPECIAL EQUIPMENT • KETTLES

235 LEVERINGTON AVENUE, PHILADELPHIA 27, PA.

When inquiring specify CP A4859 — see handy form pages 2-3

You can safely run tests BLINDFOLDED in a Despatch Oven



Because it contains no off-temperature zones, you can safely place important test-samples anywhere in a uniformly-heated Despatch Laboratory Oven.

Also with the unflinching accuracy in agreement with thermostatic control setting, you can rely upon the dependability of all of the tests you run.

DESPATCH
OVEN COMPANY

MINNEAPOLIS 14
MINNESOTA, U.S.A.

Write for
Circular 100

When inquiring specify CP A4860 — see handy form pages 2-3

JULY-AUGUST, 1946

Instruments

trolled makes or breaks contact with the probe and transmits to the control a minute electrical current at low voltage. This current controls a power circuit which operates a relay to actuate signals, valves, or pumps. Operates on 115 or 230 volts, 50/60 cycles A.C. — total power consumption is 1/2 watt. Relay is single pole double throw and designed for motor starter, motorized or solenoid valve operation. Arc suppression is supplied on both contacts for increased contact life. Probe circuit will carry resistance as high as 3500 ohms. Bulletin No. 201-P which contains complete information may be had on request.

PHOTOSWITCH INC., Dept. CP, 77 Broadway, Cambridge 42, Mass.

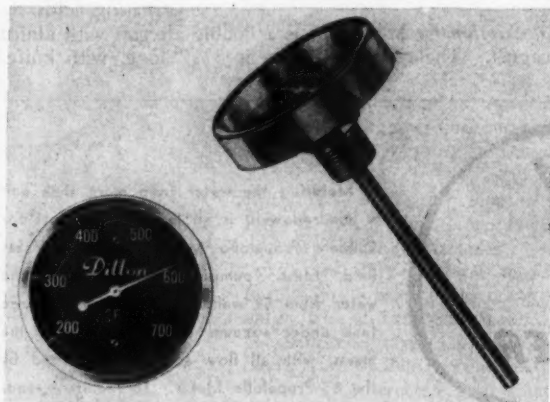
When inquiring specify CP A4861 — see handy form pages 2-3

Dial Type Thermometer Has All Stainless Steel Construction

Accuracy unaffected up to 50% overload above
500° F. range

Uses — This indicating thermometer is useful for the measurement of temperatures of liquid or gases.

Features — Pointer of the indicator is fixed to the stainless steel shaft and the shaft directly to soil. No gears are re-



Dial thermometer measures liquid and gas temperatures

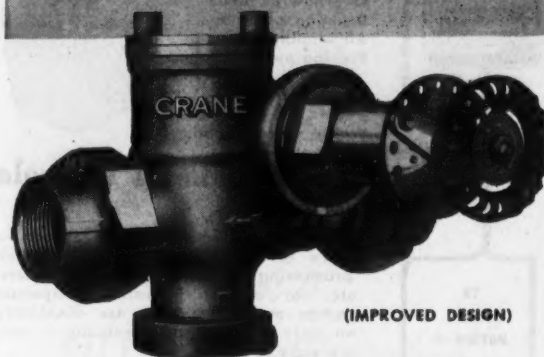
quired. This design assures accuracy and long life. Accuracy unaffected up to 50% overload above 500° F. range. 10% above 750° F. range. Overall accuracy is 1% of the range of the entire scale. Stem is only 1/4" in diameter, which permits its use in "tight" spots.

Description — Dial sizes are 3" and 5" standard. Stem is 18-8 stainless steel which is resistant to all but a few acids. 1/2" standard pipe thread mounting nut is welded to stem for most pressure uses. End plug is also stainless steel and is welded to stem. Either 5" or 9" stems are available from stock. Special length stems are available on order. The head bezel fits tightly over gasket — sealing the dial for moisture resistance. Dial is made of anodized aluminum. White figures on black background. Heat resistant. Glass is of crystal plate, or a lucite crystal is available where breakage is a possibility. 3" diameter unit weighs 8 1/2" oz. 5" model 14 oz. Centigrade dials available on order. Detailed information on request.

W. C. DILLON & COMPANY, INC., Dept. CP, 5410 W. Harrison St., Chicago 44, Ill.

When inquiring specify CP A4862 — see handy form pages 2-3

It's Back on the Available List!



(IMPROVED DESIGN)

No. 960 Brass Pressure Regulator

1. For initial steam or air pressures up to 250 lbs., reduced to within 80%. Sizes up to 2 in.
2. Can't wear out; every working part is renewable. Piston operates in removable cylinder liner.
3. Easily adapted for any of four service pressure ranges: 1 to 10, 5 to 30, 20 to 100, 90 to 200 pounds. Setting within each pressure range is by simple hand-wheel adjustment. Operation is completely automatic.
4. Maintains uniform reduced pressure at all times. Pressure cannot build up.
5. Simplified design: has minimum working parts. Fully accessible for inspection under pressure. Easy to clean.

Descriptive Folder on Request

Gives sizes, dimensions, and shows how to select proper size regulator for your needs. Your Crane Representative will be glad to tell you about deliveries on No. 960 Regulators.

CRANE CO., 836 S. Michigan Avenue, Chicago 5, Ill.
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EVERYTHING FROM . . .

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FOR EVERY PIPING SYSTEM

VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

When inquiring specify CP A4863 — see handy form pages 2-3

these **ELECTRONIC** stainless steel **FINGERS**

Step Up Production
Reduce Waste and Loss

By Preventing

Overflow of tanks
Draining of boilers
Air binding of pumps
Burning out boiler
tubes
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pots
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Faratron Liquid ^{onic} Level Controls

Just two polished stainless steel rods — that's all — in the vat, tank, boiler, processing kettle, freezer, pasteurizer, etc., to control signals or operate pumps or valves: they are constantly on duty — need no servicing — and are easy to install.

If you have any liquids — hot or cold — in any type of container — to control, you should have our Bulletin 457. Write for it today.

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MOTORS —
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SIGNAL BELLS —
or LIGHTS —
Motorized
VALVES —
Etc.

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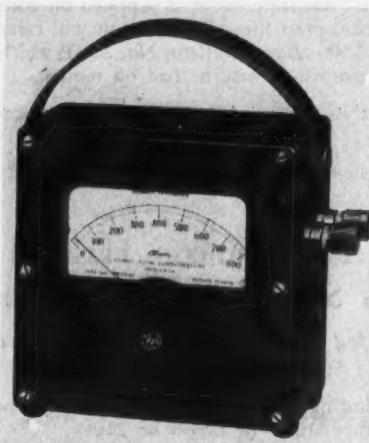
407 S. Dearborn Street Chicago 5, Ill.

When inquiring specify CP A4864 — see handy form pages 2-3

Instruments

Portable Pyrometer is Shielded Avoids Magnetic Interference

Instrument is available as single range or as a
double or triple range unit



Alnor type 1500 portable pyrometer

Description — Movement is a double air gap with alnico magnet. The type 1500 scale is 3 3/8" long, with knife-

Uses — This portable pyrometer is suitable for temperature measurement in the shop, laboratory or for general industrial use.

Features — Unit is compact, light-weight and is mounted in a magnetically shielded case so that it may be used on a steel top table, near other magnetic instruments or in strong alternating fields.

We're Shouting About Another Palmer First!

**A
SENSATIONAL NEW
THERMOMETER WITH
Extruded Brass Case**

PATENTED
• **DUST-PROOF** • **FUME-RESISTANT**

Palmer — originators of famous "Red-Reading-Mercury" — is first again with a sensational new Thermometer featuring an Extruded Brass Case. The case is fume-resistant, dust-proof, has pleasing contours and a durable nickel finish. This new Thermometer has a V-shape design and the "Red-Reading-Mercury" feature with a much larger scale... for easy, more accurate reading.

Equally important features are: double strength, non-rattling glass shield; "snap-on" cap for easy removal of shield. Send for detailed Bulletins No. 46-2 and No. 46-3.

In 4, 7, 9 and 12 in. models.
Mfrs. Industrial, Laboratory, Recording and
Dial Thermometers

PALMER THERMOMETERS, INC.

2249 Norwood Ave., Cincinnati 12 Ohio
Canadian Plant: King and George Sts., Toronto 2

When inquiring specify CP A4866 — see handy form pages 2-3

WELL! WELL! WATER FROM 58 WELLS METERED BY ONE - PROPELOFLO METER



Eight-inch Propelloflo Meter. Available in Flange or Bell and Spigot models, sizes 2" to 36".

BUILDERS **BUILDERS** **PROVIDENCE**
Instruments

When inquiring specify CP A4865 . . . see information request blank, pgs. 2-3

● Metering the water from more than half a hundred wells is all in the day's work for Builders Propelloflo Meter. At the Wakefield, Mass., pumping station shown, the water from 58 wells is collected in a large tank under vacuum and pumped into the mains, with all flow accurately totalized by the 8" Propelloflo Meter. To facilitate reading, the meter is mounted on the side of the line, but regardless of position — whether horizontal, vertical or inclined — the meter is always accurate. Should the line drain or the flow be temporarily interrupted, correct registration will be automatically resumed when normal flow is restored.

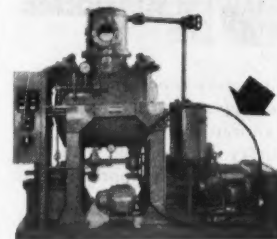
The Builders Propelloflo Meter is ideal for metering well water supplies; its streamline Venturi design gives exceptional accuracy over a wide range of flow and its low head loss means reduced pumping costs.

Just one of the many Builders products for metering and controlling flow.

For Bulletin 350A, address Builders-Providence, Inc., (Division of Builders Iron Foundry), 47 Coddling Street, Providence 1, R. I.

LOW ABSOLUTE PRESSURE *Rapidly...Continuously* **KINNEY HIGH VACUUM PUMPS**

Many of the war's top secrets now out of wraps suggest the amazing possibilities of low absolute pressures in processing. Kinney Vacuum Pumps served the war program with distinction and are now being used for dependable service in countless peacetime applications. Almost without exception in the United States and in a rapidly growing number of plants abroad, Kinney High Vacuum Pumps are standard equipment for exhausting lamps and tubes. They also provide the low absolute pressures for sintering alloy metals, coating lenses, refining rare metals and producing blood plasma, penicillin and other drugs. In fact, they are used effectively wherever a dry vacuum pump can be applied, including cyclotron evacuation and atom smashing.



Kinney Single Stage Vacuum Pump installed by Buckeye Laboratories, Cleveland, Ohio, to dehydrate and degasify refrigerator oil for General Electric Co.

KINNEY MANUFACTURING COMPANY

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New York • Chicago • Philadelphia • Los Angeles • San Francisco

• We also manufacture Liquid Pumps, Clutches and Bituminous Distributors

When inquiring specify CP A4867 — see handy form pages 2-3

Start with the RIGHT RESISTORS



Plans for new products and the modernization of existing ones are on every drafting board. In the electrical and electronic industries manufacturers are indeed entering a competition of design. You and every other manufacturer are studying available components.

When selecting resistors, give consideration to the developments that have been made to meet the severe conditions of the past several years. A resistor that better meets your requirements will add to the utility of your product.

The new Ward Leonard Hand Book "Resistors" gives resistance values, and gives terminals, mountings and enclosures. Send for a copy today.



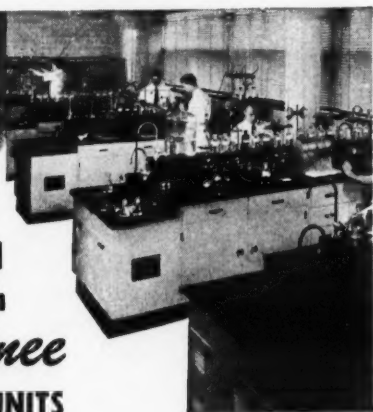
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RELAYS • RESISTORS • RHEOSTATS
Electric control devices since 1892

WARD LEONARD ELECTRIC COMPANY • 92 SOUTH STREET
OFFICES IN PRINCIPAL CITIES MOUNT VERNON, N. Y.

When inquiring specify CP A4868 — see handy form pages 2-3

**PLAN YOUR
LABORATORY
this way!**

For "Graceful
Growth" With
Kewaunee
MATCHING UNITS



Kewaunee Laboratory Furniture is designed in standard units for perfect matching. Merely add additional units as your facilities expand.

Made of finest materials by skilled craftsmen. Working surfaces are of KemROCK for defiant resistance to corrosion and shock. Metal furniture is Bonderized after fabrication.

Streamline your laboratory for greater production and "graceful growth."

WRITE: INDUSTRIAL DIVISION

Kewaunee Mfg. Co.

C. G. Campbell, President

111 S. Center St., Adrian, Mich. • Representatives in Principal Cities

When inquiring specify CP A4869 — see handy form pages 2-3

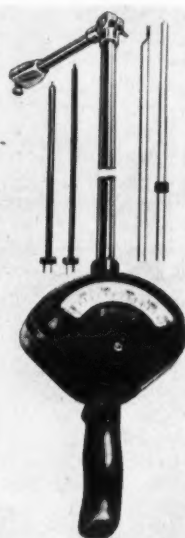
Instruments

edge pointer, contributing to easy readability. Ten standard scale ranges are available, from 0-400 to 0-3000 F., or Centigrade equivalents. Double and triple scales are available on order. Window is shatterproof glass. Heavy gauge sheet steel case, black japan finish, with leather handle, rubber feet, and two large binding posts. Metal case protects against magnetic interference. The case is gasketed, dust-tight and splash-proof. Cold end compensator is standard equipment on all single range pyrometers. Because of the magnetic shielding of the special case, it may be used in locations of magnetic interference without errors. Accuracy as a millivoltmeter is within $\frac{3}{4}$ of one per cent of full scale. Since thermocouple length and resistance usually may be controlled, total circuit resistance is held in the intermediate range, making a favorable balance between resistance variation and rugged mechanical construction. Individual instruments will be calibrated for a special thermocouple and length of connecting cable, and may be provided with a table giving calculated error for other thermocouple lengths. Descriptive bulletin will be sent on request. ILLINOIS TESTING LABORATORIES, INC., Dept. CP, 420 N. LaSalle St., Chicago 10, Ill.

When inquiring specify CP A4870 — see handy form pages 2-3

Immersion Pyrometer Measures Molten Metal Temperatures

Developed for non-ferrous metals. Ranges of 0-1500° F. or 0-2500° F. available



Pyro immersion pyrometer with several types of interchangeable thermocouples

27" and 43" are provided both having an especially designed swivel 8" from the connector block which permits the use of the unit at any angle. Toothed notches prevent the swivel from becoming loose in operation. Catalogue No. 150 which illustrates and describes this instrument in detail is available to those requesting it.

THE PYROMETER INSTRUMENT CO., Dept. CP, 103 Lafayette St., New York 13, N. Y.

When inquiring specify CP A4871 — see handy form pages 2-3



*"How much is
FILTERED AIR worth?"*

Air filtering, in many production processes, frequently makes the difference between profit and loss—between inspection approvals and rejects. Then air filters are "worth their weight in gold". Yet by using DUST-STOP, the advantages of filtered air can be obtained at both low initial and low maintenance costs.

The DUST-STOP is a replaceable-type air filter in which packs of adhesive-coated FIBERGLAS fibers provide an efficient medium for catching and holding most atmospheric and manufactured dusts.

DUST-STOP Air Filters are readily adaptable to the smallest or largest heating, ventilating or air-conditioning system—may be installed in custom-built or the complete, ready-to-assemble DUST-STOP steel frame cells that can be built up into filter banks to handle any c.f.m. of air required.

Once the filter bank is installed, maintenance is easy and economical—for replacement DUST-STOPs are readily available from authorized suppliers in every community.

Complete information on DUST-STOP Air Filters will be sent on request—See Sweet's Files for typical installation details or write: Owens-Corning Fiberglas Corp., Dept. 959, Toledo 1, Ohio. Branches in principal cities.

In Canada: Fiberglas Canada Ltd., Oshawa, Ontario.

DUSTSTOP AIR FILTERS
—a FIBERGLAS product

When inquiring specify CP A4872 — see handy form pages 2-3

NEW DE-IONIZER for LABORATORIES and small industrial plants



REMOVES TROUBLESOME DISSOLVED MINERALS FROM YOUR WATER SUPPLY



- ✓ CONVENIENTLY
- ✓ EFFICIENTLY
- ✓ ECONOMICALLY

- Produces De-ionized water (the modern low-cost equivalent of distilled water)
- 200 gallons on 7 grain water for less than 20¢
- No heat required, no cooling water, no periodic dismantling
- High capacity (up to 12 gals. per hr.) Durable. Portable (weighs 30 lbs.)

Write for literature today

ILLINOIS WATER TREATMENT COMPANY

849-7 Cedar St., Rockford, Illinois
7310-G7 Empire State Bldg., New York City

**WATER
TREATMENT
ENGINEERING**



See this equipment at the Chemical Exposition, Chicago

When inquiring specify CP A4873 — see handy form pages 2-3

Instruments

Electronic A-F Frequency Meter Measures Speeds Accurately

*Suitable for reciprocating and rotating mechanisms;
also useful as a high-accuracy frequency meter*



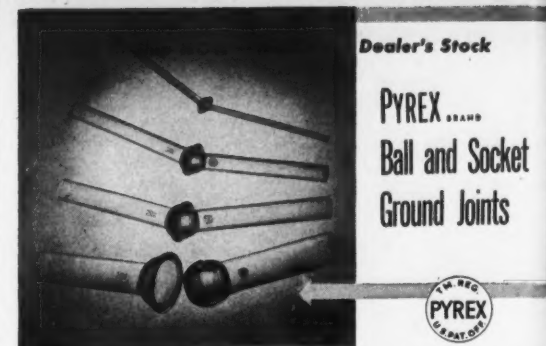
Model 1800 frequency meter

Uses — Basically, this device measures the frequency of a-c voltages over the entire audible frequency spectrum. In conjunction with a new "photo-beam converter", it instantly becomes an accurate electronic tachometer for measuring the speed of rotating or reciprocal mechanisms, including those which cannot be subjected to any additional mechanical load. Speeds in excess of one million RPM or CPM can quickly and easily be measured with this instrument. It can also be used to measure relatively slow speeds in the order of 60 RPM or CPM with equal accuracy and ease, by means of a special "frequency-multiplying" disc or similar device. As a high accuracy frequency meter, it has a number of uses:

- (1) To determine the unknown frequency of various a-c voltage sources.
- (2) To check the calibration of beat-frequency oscillators or their audio-voltage generators.
- (3) To measure the difference frequency between a standard radio-frequency oscillator and a local or remote radio transmitter.
- (4) To determine the difference frequency between a crystal oscillator and a standard-frequency generator.
- (5) In crystal laboratories, in conjunction with graphic recorders, for determining crystal frequency-drift characteristics under controlled conditions.

Features — When the unit is correctly calibrated at only one point, such as 60% or full-scale meter deflection, its accuracy is better than 1% at full scale and is equally good at 1/10 of full scale and at all other intermediate points, the actual error in any case depending largely on the so-called "decade accuracy" of the indicating meter. One of the features of Model 1800 is that it can measure the frequency of positive or negative "radar type" pulses from a fraction of a micro-second to more than 50 micro-seconds in duration. A separate input jack is provided for pulse operation. The WAVE INPUT circuit will accept voltages of practically any waveform having a duration of from 50 micro-seconds to 100,000 micro-seconds (20,000 to 10 cycles per second). Due to its adequate regulation of all critical circuit and tube parameters, is substantially (0.1% to 0.2%) unaffected by line-voltage variations of 105 to 125 volts, by temperature variations from 0° C. to plus 70° C., or by high relative humidity.

Description — The indicating meter of the unit is a special instrument using a suppressed-zero movement and a hand-



Dealer's Stock

PYREX...
Ball and Socket
Ground Joints



Now ample stocks of Pyrex brand Ball and Socket Joints are available in all sizes.

Improved machine operations developed by Corning have facilitated production and speeded-up delivery to laboratory supply dealers.

Pyrex Ball and Socket Joints are accurately ground, precision gauged and vacuum tested; made of Pyrex brand Chemical Glass No. 774. Completely fabricated in the Corning apparatus shops—quality workmanship is assured. All parts are interchangeable. They accommodate clamps of conventional design.

Pyrex brand Ball and Socket Ground Joints are described and listed on page 89 of Corning's Laboratory Glassware Catalog LP24; or consult your regular laboratory supply dealer for complete information.

"Pyrex," "Vycor" and "Corning" are registered trade-marks and indicate manufacture by

CORNING GLASS WORKS • CORNING, N.Y.

PYREX brand LABORATORY GLASSWARE

BALANCED FOR ALL-AROUND USE



When inquiring specify CP 4874 — see handy form pages 2-3

SEND FOR THIS CATALOG!



Data, specifications and illustrations... factual and helpful... about Alberene Stone, the material that outlasts the building.

ALBERENE STONE CORP. OF VIRGINIA
419 4th Ave., New York 16, N.Y.

When inquiring specify CP A4875 — see handy form pages 2-3

Instruments

calibrated logarithmic scale. These result in increased ease and accuracy of reading, inasmuch as the readability is a constant, percentage-wise, at both upper and lower ends of the scale. The operation of the counter circuit is linear, so that an external 0-1 ma. d-c meter of the ordinary type can be plugged in to the jack provided at the front or at the rear of the chassis. This permits local and remote meter readings simultaneously, as well as instantaneous and graphically recorded readings against time. "Navy-type" construction is used through the instrument, thus insuring trouble-free performance under continuous-duty operation. A descriptive bulletin is available on request.

COMMUNICATION MEASUREMENT LABORATORY,
Dept. CP, 120 Greenwich St., New York 6, N. Y.

When inquiring specify CP A4876 — see handy form pages 2-3

Recorder Makes Permanent Solubridge Readings

Can be furnished in 1, 2, 3 and 4 continuous line records on one chart. No switching devices necessary

Uses — This unit provides means of continuously and permanently recording the electrolytic conductivity of solutions, condensates or water by the solubridge method.

Features — Recorder incorporates an a.c. Wheatstone Bridge circuit operating on the null balance principle. Accuracy is independent of line-voltage fluctuations and vacuum-tube characteristics. Instrument can be furnished for 1, 2, 3, or 4 continuous-line records on the same 12-inch diameter circular chart, a separate amplifier and motor-driven slide wire being used for each recording pen so that no switching devices are necessary.

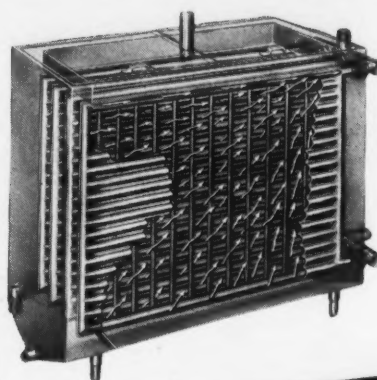
Description — Amplifier amplifies the Wheatstone Bridge output voltage and provides the electronic control of the slidewire drive motor both as to direction of rotation and speed. The amplifier is a standard and interchangeable unit. Housed in a metal cabinet, the instrument has a circular recording chart. As optional equipment, the recorder can also include a 29-inch indicating scale and bold indicator pointer, illuminated by an optional built-in fluorescent lamp, providing a reading at a distance of 50 feet. The indicator pointer is arranged with a magnetic lock so that operation of the chart release lever lifts both indicator pointer and recording pens, leaving the chart free for exchange. It can operate in conjunction with only one pen, and its use therefore limits the recorder to a maximum of three pens instead of the maximum of four. The conductivity recorder may be provided with a simple, positive and trouble-free micro-switch mounting on the inside of the hinged mounting panel and actuated by the same slidewire unit that drives the recording pen. This control switch is operated by an adjustable cam set to trip at any desired position of the recording pen or indicating pointer. Up to four switches, individually adjusted, may be provided on the single pen recorder. Alternately, two independent slidewire units in the same recorder housing may be equipped with control switches. In addition to the microswitch on-off contacts, air-operated proportioning controllers can be supplied as optional equipment. Numerous models of this recorder are available, covering either narrow or wide ranges, and suitable for use with electrolytes of either low or high conductivity. Detailed information on this equipment available on request.

INDUSTRIAL INSTRUMENTS, INC., Dept. CP, Jersey City 5, N. J.

When inquiring specify CP A4877 — see handy form pages 2-3

JULY-AUGUST, 1946

32° Water — 24 Hours a Day



No Icing Up!

... because of the patented "SHORT GAS FLOW" feature.

All the 32° water you want instantly, with no icing up, and at less cost! It's yours with a Jensen Industrial Chilled Water Unit because the "short gas flow" permits use of higher back pressures. Built to meet any tonnage requirement . . . designed to fit your particular needs. For example, photo at right shows 100-150-ton unit with stainless steel cooling sections. Uniform temperature automatically maintained. Dimensions without controls: 7'x11'x6' high.

See the exclusive "short gas flow" feature—Booth 105—at the National Chemical Exposition, Chicago (Sept. 10-14). Write for bulletin 48-A just off the press. And if you have a cooling problem, our engineers will gladly help you solve it.

JENSEN MACHINERY CO., Inc.
Bloomfield, N. J. • Oakland, Calif.



INDUSTRIAL CHILLED WATER UNIT

When inquiring specify CP A4878 . . . see information request blank, pgs. 2-3

SIMULTANEOUS ANALYSIS OF 5 GASES



CAMBRIDGE 5-POINT GAS ANALYSER provides simultaneous analysis and continuous graphic record of the amounts of CO₂, H₂, CO, CH₄, and O₂ in a sample of combustion products. Enables close control in metallurgical industry, chemical processes, oil refining, kilns, inert gas producers and other chemical processes. Other gas analysing equipment available. Inquiries for special applications invited.

CAMBRIDGE GAS ANALYSERS

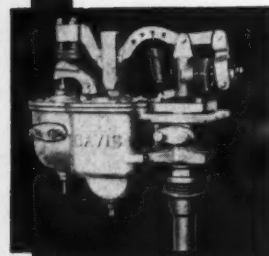
Cambridge Instrument Co., Inc.

3706 Grand Central Terminal New York 17, N. Y.

Send for descriptive bulletin

When inquiring specify CP A4879 — see handy form pages 2-3

DAVIS SOLENOID VALVES for—



**Steam, Air, Water,
Oil Applications,
Extreme Accuracy
Sizes 1/2" to 12"
Pressures to
1500 Lbs.**

Davis No. 97TH two-step Solenoid Valve for extremely accurate proportioning or throttling of liquid flow.

Davis Solenoid Valves are operated by any device that will make or break an electrical circuit, and are furnished either normally open or normally closed—explosion proof if desired.

Davis valves adapted to solenoid operation include: single seated valves for high or low pressures, balanced valves, butterfly valves, and 3 or 4-way pilot valves. Reciprocating or rotary stem type. For extreme accuracy, the Davis Two-Step Solenoid Valve is available.

Write today for details

DAVIS REGULATOR CO.
2562 SOUTH WASHTENAW AVENUE
CHICAGO 8, ILLINOIS

Solenoid Valves available with the Dia-Ball leakproof, rackless transmission unit.

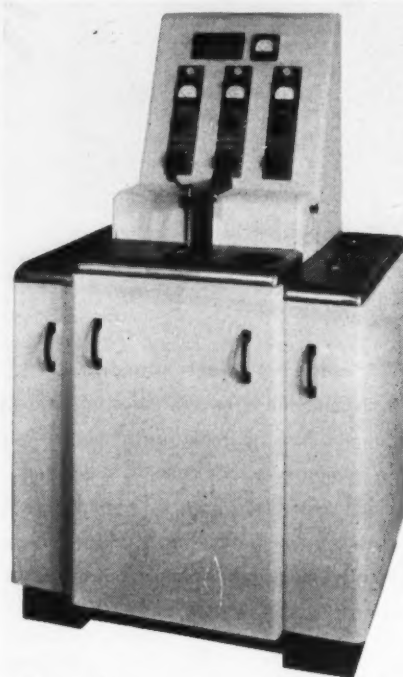
When inquiring specify CF A4880 — see handy form pages 2-3

Page 36

Instruments

Electropolisher Speeds Preparing of Metallurgical Specimens

Electropolishes and etches samples in less than one minute. Presetting device automatically controls time



Self-contained specimen polisher

steels, cast irons, nickel and nickel alloys, bearing metals, copper, brass, aluminum, zinc, cadmium and many other metals and alloys.

Features — Unit reduces polishing and etching time from hours (for hand methods) to minutes and seconds. Inclusions are retained and may be identified. Wide selection in time and current for polishing and etching a wide variety of metals. Prepares a uniformly flat area of one square centimeter.

Description — Apparatus is completely self contained. It is housed in a metal cabinet with inclined control panel containing knobs and meters for control of polishing and etching time and current. A water fountain is provided for cooling and washing the sample and connections are made to city water and drain pipes. Requires either 115-volt or 230-volt, 60-cycle alternating current. The maximum power requirement is 3 KVA. The preparation of samples for the microscope is fast and simple. Saw the specimen from the material to be examined and grind it on No. 0 or 00 emery paper. Place it on the etching plate and adjust the etching electrode. After this adjustment is made, samples of the same size are quickly clamped with the hand lever. All sizes and shapes of metal specimens commonly used for microscopic examination can be accommodated. Adjust polishing time and current. Adjust etching time and current (either A.C. or D.C. etching is available). When these adjustments have been determined for any particular type of metal, they can be recorded for future use. Switches on the table surface are held until polishing is complete (less than one minute) and are reversed for etching (a few seconds). Since the

Uses — Properly polished and etched samples of metallurgical specimens are easily prepared with this equipment. Typical substances which may be prepared are: low and high carbon steels, plain carbon and stainless steels and most of the other complex alloys containing small amounts of iron, cast

PALO-TRAVIS

PARTICLE SIZE APPARATUS
OFFERS

Accuracy

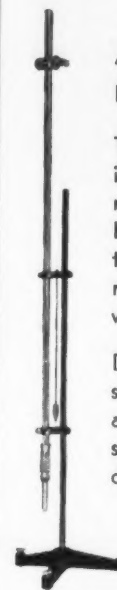
Ease of Manipulation

Versatility

Rapidity

The sedimentation principle on which this instrument operates, makes it possible to range, from 325 mesh down to 2 microns. Elaborate calculations are eliminated by the use of a graphical solution or a slide rule calculator, both of which are furnished with the instrument.

Determination may be made on any substance, providing there is a liquid medium available in which the substance is insoluble, and a wetting agent that will disperse the particles.



PALO-MYERS INC.
81 READE STREET, NEW YORK 7, N. Y.

When inquiring specify CP A4881 — see handy form pages 2-3

Dependable Controller for ABSOLUTE PRESSURE

Equipped with stabilizing automatic reset and accurate, automatic compensation for atmospheric pressures, the Foxboro Stabilog Absolute Pressure Controller gives much closer control than possible with other automatic methods or manual control. It gives both stability and accurate performance in maintaining desired pressure, even on the most difficult applications.

Made in recording and non-recording models, with either round or rectangular cases. Foxboro Absolute Pressure Indicators and Recorders also are available.

Write for specific information on your application. The Foxboro Company, 190 Neponset Avenue, Foxboro, Massachusetts, U. S. A. Branches in principal cities.

FOXBORO

ABSOLUTE PRESSURE
CONTROLLERS

When inquiring specify CP A4882 — see handy form pages 2-3

CHEMICAL PREVIEW

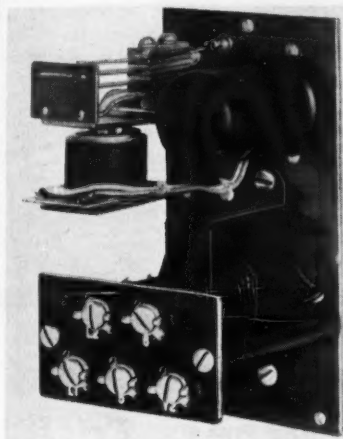
Instruments

two switches must be held one in each hand in the closed position, there is no danger of the operator touching the electrode while it is at high potential. The sample is unclamped, washed in the water fountain, dipped in alcohol, dried and is then ready for microscopic examination. Complete information on this equipment may be had on request. CENTRAL SCIENTIFIC CO., Dept. CP, 1700 Irving Park Road, Chicago 13, Ill.

When inquiring specify CP A4883 — see handy form pages 2-3

Super-Sensitive Relay Uses Hot Cathode Principle

Trips by an external contact carrying only 3 microamperes



Super-sensitive relay

on metal fed to punch presses, precision grinding and gauging, limit switch guidance of material fed into production machines.

3. Converting delicate contact-making instruments (such as mercury column thermometers, meter relays, recorders, precision gauges, electrical flow meters) into positive control devices without causing arcing or welding of electrodes.

4. Liquid level control — where electrodes may be immersed in a tank and govern low-level and high-level limits.

Features — This electronic relay utilizes an entirely new principle — the Hot-Cathode Thyatron — and may be used with advantage over ordinary vacuum-tube and cold-cathode devices. Principle characteristics are; Snap action, high load contact capacity, and trips by either: (a) an external contact carrying only 3 microamperes; or (b) any external circuit whose value drops to 1 megohm pure resistance.

Description — Operation is from 110V., 60 Cy., AC lines. Switching action is SPDT, or up to 4PDT for loads to 12 amps., 110V., AC non-inductive. Mercury contacts are supplied for contacting loads to 30 amps. Up to 100 feet of either conduit, BX or co-axial cable may be used for connections between external actuating source and the electronic relay. While design is suitable for mounting unenclosed, general purpose as well as dust-tight enclosures are available for housing the relay. More details are available from the manufacturer.

AUTOMATIC TEMPERATURE CONTROL CO., Dept. CP, 34 E. Logan St., Philadelphia 44, Pa.

When inquiring specify CP A4884 — see handy form pages 2-3

Uses — Applications for the device are:

1. In Photo-cell circuits, for direct controlling actuation of motors, valves, alarms.

2. Motion and Limit control within micro-inches on: Tear detection on paper feed machines; Wire stranding machines; Automatic feed machines such as wrinkle detection

"BOUND TO GET THERE"
... with Less Handling



Doc. Steelstrap REG. U.S. PAT. OFF.

ACME Uni-Pak...

Just what its name implies, several packages tied into one by Acme Steelstrap. The modern method of shipping a group of packages, semi-finished parts, or finished products . . . with less handling.

Illustrated above is a case in point. One man, a lift truck, and Acme Uni-Pak . . . the job is done in a fraction of the handling time required by cumbersome, old fashioned ways.

Yes, for complete shipping efficiency, for making safe shipments . . . ship Acme Uni-Pak with Acme Steelstrap. Look into this minimum handling method today.

**15 MAN HOURS
SAVED ON CARLOADS
ACME UNI-PAK'D**

A leading manufacturer and shipper says . . . "since using your Uni-Pak process, the time required by handling and loading car-lot shipments has been reduced the equivalent of 15 man hours per car. The number of cars loaded has speeded up accordingly."

NEW YORK 7

ATLANTA

CHICAGO 8

LOS ANGELES 11

ACME STEEL COMPANY

**ACME STEEL CO.
CHICAGO**

When inquiring specify CP A4885 . . . see information request blank, pgs. 2-3

JULY-AUGUST, 1946

When inquiring specify CP A4885 . . . see information request blank, pgs. 2-3

many uses —
many advantages



SPERRY PLATE FILTER PRESS

The many advantages offered by the Sperry Plate Filter Press make it rate higher in demand than any other type of filter:

One is its versatility. The Sperry Plate Filter Press can be made of an almost endless variety of materials and will handle any type of filterable mixture, including viscous substances. It can perform low, medium or high pressure filtration. It can use virtually any type of filter base.

Another great advantage is its simple construction, which makes its first cost low, and keeps maintenance and operating expense at a minimum. It also assures ease of operation.

If you have a filtration problem, discuss it with Sperry engineers... get the benefit of Sperry's half century of experience in industrial filtration. There is no obligation.

D. R. SPERRY & CO., Batavia, Illinois

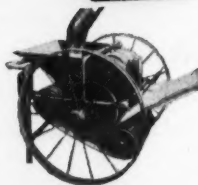
When inquiring specify CP A4886 — see handy form pages 2-3



LOAD and TRIM
... this FAST Low-Cost Way!

An S-A BOX CAR LOADER will load and trim cars in a fraction of the time required by hand... handles any dry, pulverized, granular or small lump materials, such as grain, salt, coal, fertilizer... no disagreeable hand trimming... no exposure to dust.

This portable machine requires only part time attention of one man... two standard sizes for capacities up to 100 and 350 tons per hour. Write for Loader Bulletin No. 240



STEPHENS-ADAMSON

Tellevel—Bin Level
Controls Car Loaders
MFG. CO. SealMaster Ball Bearings
Car Pullers Winches
Saco Speed Reducers

11 RIDGEWAY AVE., AURORA, ILLINOIS

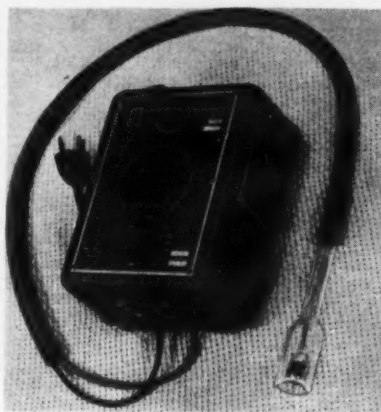
When inquiring specify CP A4887 — see handy form pages 2-3

Page 38

Instruments

Purity Meter Reads Directly in p.p.m. as NaCl

Conversion table shows equivalent resistance and conductance



Purity meter checks distilled water or demineralized water

without any calculations on the part of the operator. The use of a much higher resistance basis for the theoretical zero of the scale, makes readings more accurate. Widening of the low-figure range on the scale (where most pure waters come) makes the instrument more delicate in fine measurements.

Description — An electric eye, which indicates the correct setting, makes it simple for untrained operators to use the instrument accurately. Since it measures only ionizable solids, it can be used equally well with demineralized water produced by the ionizing process. The unit is self-contained in a metal case. Scale 0-15 p.p.m. as Sodium Chloride. Temperature correction scale 64°-190° F. Dimensions are 6 3/4" x 5" x 2 5/8". Operates from 105-120 volt A.C. 50-60 cycle line. Requires no batteries or accessories other than conductivity cell. Metal conversion table is permanently attached to side of instrument. For use with glass dip cell, rubber dip cell or threaded cells.

THE BARNSTEAD STILL & STERILIZER CO., INC.,
Dept. CP, 2 Lanesville Terrace, Forest Hills, Boston 31, Mass.

When inquiring specify CP A4888 — see handy form pages 2-3

Strain-Gage Amplifier Handles Frequencies 0-1000 Cy. per sec.

Amplifier channels stabilized against line voltage change or tube characteristic variation
Uses — This strain-gage amplifier is designed for use with resistance-wire, electro-magnetic and magnetostrictive strain gages for amplifying small electric signals varying in frequencies from 0 to 1000 cycles per second. For use in development and testing laboratories and production shops.
Features — Unit is small and light in weight, thus making it suitable for "hard to get at" places. Easily transported.
Description — The amplifier is operated in conjunction with either a magnetic oscillograph or a cathode ray oscilloscope. Available for use on 115 volts, 60-cycle a-c or for battery operation at 24 volts, the strain-gage am-

THIS HYDRO-CLONE GIVES LOCALIZED DUST CONTROL



Type "R" Hydro-Clone used to suppress plastic dust.

• The Whiting Hydro Clone Type "R" wet dust suppressor is particularly suited to interior installations. It precipitates heavier particles in a pre-cleaner section—then moves the fines in a disintegrator section, leaving only clean air to pass through the exhaust fan. All dust is reduced to sludge, which drains to dewatering tank or sump.

The unit is entirely self-cleaning... has no moving parts, cloth bags, or screens. Full details are given in Bulletins FY-112 and FY-114. Write for them.

WHITING CORPORATION

15667 Lathrop Ave.
Harvey, Illinois

FREE
New booklet of
Practical Points
on Dust
Suppression.
Ask for Bulletin
FY-129.

When inquiring specify CP A4889 — see handy form pages 2-3

This Pump "Takes It" Where Others Fail

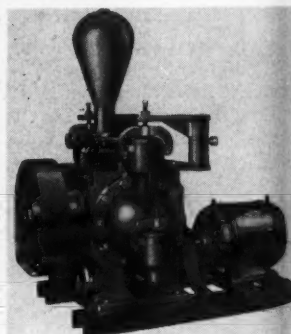
NO PACKINGS

NO LEAKAGE

NO CORROSION

NO CONTAMINATION OF FLUID

NO WEAR OF PUMP MECHANISM



The material pumped — no matter how abrasive, corrosive, viscous or heavy — never gets a chance to injure the moving parts. The liquid ends can be made of any metal or with any covering required to withstand attack... This double acting, reciprocating pump delivers 1 to 100 g.p.m. at pressures to 100 p.s.i. It is easy to clean and maintain. It's the pump for tough materials and low cost operation. There's a size and type for your process. — Get Bulletin 121. T. Shriver & Company, Inc., 846 Hamilton St., Harrison, N. J.

Shriver
DIAPHRAGM PUMPS

When inquiring specify CP A4890 — see handy form pages 2-3

CHEMICAL PREVIEW

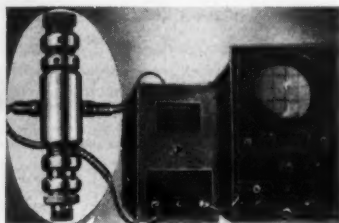
plifier consists of a 5000-cycle oscillator unit, a power unit, and either two or six identical amplifier units, all mounted in separate chassis in a sturdy case. The amplifier channels are stabilized against line voltage change or variations in tube characteristics, and each can be removed for servicing and inspection. Instrument and operating controls for each amplifier channel are mounted on the front panel, and include controls providing impedance balance and phase balance for the gages, and instruments showing the output in milliamperes of each channel. Connectors are provided at the back of the unit for connection to the gages and to the indicating or recording instrument.

GENERAL ELECTRIC CO., Dept. CP, Schenectady, N. Y.

When inquiring specify CP A4891 — see handy form pages 2-3

Pressuregraph Indicates Pressure Time Curve

Useful in studies of all types of internal combustion engines, pumps, compressors, air and liquid pipe lines



Pick-up Pressuregraph and oscillograph make compact assembly

Uses — The instrument provides, with a Cathode Ray Oscillograph, a substantially linear pressure-time curve on the screen, which indicates the performance of any engine, pump, or other device subject to pressure

variations. It is used for studies of all types of internal combustion engines, pumps, compressors, air and liquid pipe lines. It shows the erratic operation of a device which normally cannot be observed by other means, due to inertia of fly-wheels, and other factors. In addition to dynamic pressure variations, it shows static or slow pressure variations. It covers all mechanical speeds, and pressures up to 10,000 p.s.i.

Features — The Pressuregraph provides means for temperature compensation. There are three output selections: 1) for double modulated wave; 2) for indicator card wave; 3) integrated single line providing means for transmission of pick-up response to a string oscillograph, for photographic recording. Pick-up is vibration-proof, and is furnished with or without water-cooling.

Description — Operation includes only one control. Pick-up is inserted in cylinder or chamber of airline. The pick-up includes a diaphragm which, when acted on by pressure impulse, unbalances an electronic circuit. Unbalanced voltage from the pick-up is delivered to the Pressuregraph cabinet where it is amplified, and passed through a negative modulation suppressor, and then to the oscillograph. The sweep circuit of the oscillograph is adjusted to the speed of the engine of mechanism under test. A band of light appears on the screen, the contour or shape of which light is the true pressure-time curve. This band of light is not a line or tracing, but an area similar to that of a television picture, and easily readable. More details are available on request.

ELECTRO PRODUCTS LABORATORIES, Dept. CP, 349 West Randolph St., Chicago 6, Ill.

When inquiring specify CP A4892 — see handy form pages 2-3

B.S.&B. SAFETY HEADS



RECOGNIZED protection for chemical reaction vessels and other pressure equipment containing corrosive chemicals. SAFETY HEADS isolate relief valves from gummy materials which would otherwise render valve inoperative.

Obviously there can be no leakage through a SAFETY HEAD rupture disc, such as is often experienced with a relief valve.

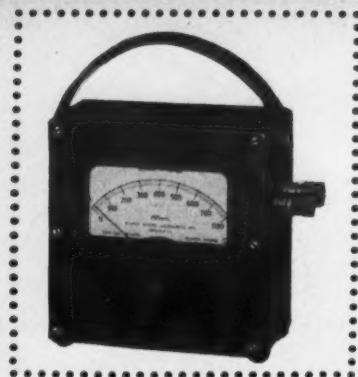
BUT, the important feature is the great capacity. When the SAFETY HEAD rupture disc breaks from over-pressure, you have a full size, straight through relief opening.

WRITE FOR CATALOG TODAY

BLACK, SIVALLS & BRYSON, INC.
7500 E. 12th STREET
KANSAS CITY 3, MO.



When inquiring specify CP A4893 . . . see information request blank, pgs. 2-3



**TYPE
1500**

Alnor PORTABLE PYROMETER

This compact, lightweight pyrometer is mounted in a magnetically shielded metal case, providing for accurate temperature readings in shop and general industrial use as well as in the laboratory.

The pyrometer movement is the Alnor double air gap type with Alnico magnet. The case is heavy gauge sheet steel, providing magnetic shielding so that Type 1500 may be used on a steel top table, near other magnetic instruments or in strong alternating fields without suffering the unpredictable errors experienced with unshielded pyrometers.

Type 1500 is available as a single circuit pyrometer with a choice of ten scale ranges, 0-400 to 0-3000 F. or as a double or triple range instrument built to order with scales as specified. Centigrade scales can be furnished. Write for descriptive bulletins.

ILLINOIS TESTING LABORATORIES, INC.
420 NORTH LA SALLE STREET • CHICAGO 10, ILLINOIS

When inquiring specify CP A4894 — see handy form pages 2-3

TEMCO ELECTRIC FURNACE

MODEL GRP

**FOR HEAT TREATING
SMALL TOOLS AND
PARTS, TESTING AND
LABORATORY WORK.**

FAST HEATING—1500° F. in 30 min. Temperature controlled by four point switch set for 500°, 1000°, 1500° and 1850° F.

These settings easily changed by adjusting bands on rheostat coils. Dependable indicating pyrometer is calibrated in both Fahrenheit and Centigrade scales.

UNIFORM TEMPERATURE—Heating element of highest quality nickel-chromium alloy forms a continuous coil and is embedded in sides, top and bottom of muffle chamber. This construction assures uniform temperature and protects element from damage and oxidation. Complete muffle unit is replaceable.

PORTABLE—Body is aluminum. Total weight, 17 lbs. Muffle chamber, 4" x 3 3/4" x 3 3/4"; furnace overall, 9 1/4" x 13 1/2" x 10 1/2". Supplied with attachment cord. Operates on A.C. and D.C., 115 or 230 V. (be sure to specify voltage). Max. power consumption 1200 watts. Model GRP complete, 115 V. \$50.00, 230 V. \$55.00

See your supply house or write

THERMO ELECTRIC MFG. CO., 478 W. Locust St., Dubuque, Ia.

When inquiring specify CP A4895 — see handy form pages 2-3

Instruments

Mercury Temperature Regulator Has Signal Light

Suitable for range of 30° F. to 500° F.

Sensitivity is plus or minus .02° F.

Uses — This regulator is intended for control of temperatures of water, oil, air baths, ovens and other applications in the setting range of minus 30° F. to plus 500° F.

Features — Unit has a red or white signal light which glows brilliantly while temperature is rising and shuts off when set temperature is reached. The signal light can be seen at a distance when glowing, and thus permits operator to perform other duties since he can determine at a glance when temperature in bath, oven, etc. has reached set temperature and when regulator is operating properly. Signal light is easily replaced.

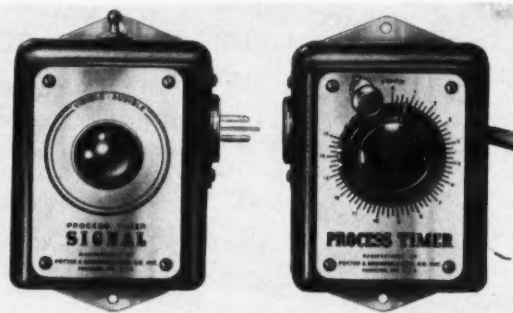
Description — This thermoregulator, which is available in 6, 8, 10, or 12 inch lengths, has durable machined plastic head whose design provides full visibility for easy setting, a convenient means for mounting, and an appropriate mounting for signal light. Contributing to the temperature regulator's accuracy and long life, is the manufacturer's improved distilling and filling method by which the mercury is distilled directly into the regulator without being exposed at any time to atmospheric air, thus providing higher purity of mercury. Descriptive bulletin No. 100-27 is available on request.

WASHINGTON GLASS LABORATORY & INSTRUMENT CO., Dept. CP, 3224 Georgia Ave., N. W., Washington, D. C.

When inquiring specify CP A4896 — see handy form pages 2-3

Synchronous Process Timer Has Many Applications

*Standard time cycles 0-15 minutes; 0-30 minutes;
0-1 hour and 0-12 hours*



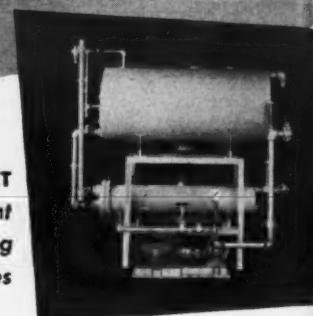
Type A signal indicator and Type TA process timer

Uses — Unit is especially applicable wherever accurate timing of an operation is required such as: molding, electronic heating, plating, photography, chemical processing, heat treating, cooking, baking, drying, aging, and others.

Features — This timer is sturdy and powered with an instantaneous starting synchronous motor. Heavy silver contacts rated at 1000 watts or 1HP load. Fine silver contacts are snap acting, fast and positive for constant load carrying capacity and long life.

Description — A single 3-way outlet mounted on the side of the case permits connection to the load for "On during cycle" or "off during cycle and come on at end of cycle".

Save WASTED B.T.U.'s!



**Get EXTRA HEAT
From Your Present
Boiler by Stopping
Flash Steam Losses**

SCHAUB Heat Reclaim SYSTEM

It's easy to stretch the steaming capacity of your boiler by re-using "flash" steam that ordinarily escapes from the receiver vent. With a Schaub patented heat exchanger—this lost heat is transferred to the feed water on its way to the boiler. Feed water temperatures are built up to 260°—or higher—with the reclaimed steam.

Automatic water level and make-up are provided for in the Schaub System. Write today for details.

SCHAUB SYSTEMS—the Key to Boiler Room Efficiency

FRED H. SCHAUB ENGINEERING CO., INC.
2113 SOUTH MARSHALL BOULEVARD, CHICAGO 23, ILL.

When inquiring specify CP A4897 — see handy form pages 2-3

**for information
on
PRECISE
TEMPERATURE CONTROL**

—Send for this
PRINCO BULLETIN

Bulletin "T" has complete details on PRINCO Temperature Control Instruments, including Models for EXTRA HIGH PRECISION, HIGH TEMPERATURES, LOW TEMPERATURES, SEVERE SERVICE, etc., for use in industrial, laboratory, marine, and many other applications. Write for your copy of this Bulletin for your files—TODAY.

PRECISION
THERMOMETER & INSTRUMENT COMPANY

PRINCO

PRECISION INSTRUMENTS FOR INDUSTRY

1404 Brandywine Street, Philadelphia 30, Pa.

When inquiring specify CP A4898 — see handy form pages 2-3

The case is of heavy molded bakelite with holes in the back plate for screw mounting on any surface. Timer operates equally well in any position. Knob is $1\frac{1}{2}$ " diameter and $\frac{7}{8}$ " high for easy operation even with heavy gloves. Dial is fitted with an adjustable mechanism, so that any desired time interval up to the limit of the unit may be preset and thereafter the same time cycle will be repeated at each manual resetting, or the stop may be released and the desired time interval that can be set is approximately 1% of the full range of the timer. The pointer is sharp and moves close to the dial so as to reduce parallax and permit accurate setting. Standard time cycles are from 0-15 minutes; 0-30 minutes; 0-1 hour and 0-12 hours. Other time cycles are available on order. Size of unit, $5\frac{1}{2}$ " x $3\frac{1}{4}$ " x $3\frac{1}{2}$ ". A companion piece to the Type TA Process Timer is the "Type A" Signal Indicator. Housed in a molded bakelite case similar to the TA Timer, the Signal Indicator contains both a buzzer and bright bulls-eye light. It can be mounted in any position, and is fitted with a male three-way plug which will connect directly into the socket on the TA Timer, thus giving a unit assembly for timer and indicator, or it may be remotely located at any distance by use of a 3 wire cord. Both buzzer and light can be disconnected from the circuit if desired. Any combination of "on during cycle" or "come on at end of cycle" can be had, and reset of the timer knob instantly turns signal off. Additional details are available on request.

POTTER & BRUMFIELD SALES CO., Dept. CP, 549 W. Washington Blvd., Dept. 254, Chicago 6, Ill.

When inquiring specify CP A4899 — see handy form pages 2-3

Indicating Dial Type Thermometer Serves Two Purposes

Has accuracy of 1% of scale range, will withstand 10% over-range



Bi-metallic dial-type thermometer

Uses — An all metal dial-type thermometer, this instrument may be used as a portable unit or a permanently-mounted indicating thermometer.

Features — All-metal construction gives maximum protection against vibration, shock, and rough handling; quick response to temperature change; precision bi-metallic temperature element has no pivots, mechanical linkages, or gears and is stated to provide sustained accuracy within 1% of scale range; the unit is designed to withstand momentary over-scale temperatures 10% of scale range.

Description — This dial type thermometer has a scale range of 100° to 950° F. It is made of corrosion-proof stainless steel, stem $\frac{3}{16}$ " O.D. and 5" free length, with only 2" immersion required to obtain accurate readings. Also available with $\frac{3}{8}$ " O.D. stem having 9" free length.

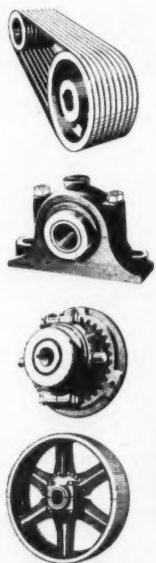
BACHARACH INDUSTRIAL INSTRUMENT CO., Dept. CP, 7000 Bennett St., Pittsburgh 8, Pa.

When inquiring specify CP A4900 — see handy form pages 2-3

JULY-AUGUST, 1946

TRANSMISSIONEER... WHO'S HE?

He's a graduate of a Dodge factory course, qualified by intensive training and a broad practical experience to give you the latest answers to problems in efficient mechanical transmission of power — in your plant or as applied to your product.



The Transmissioneer is backed by a broad line of Dodge bearings, sheaves, pulleys, clutches and other drive components. He is qualified by training and experience to select elements which make the right drive for the job.

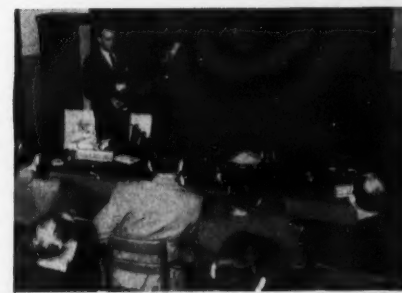
• Typical of the engineering advancement which marks Dodge products is the new Taperlock sheave, which has the simplest, surest mechanism ever devised for fastening wheels to shafts. For information about Taperlock—and other new developments in the mechanical transmission of power, call the Transmissioneer — your local Dodge distributor. Most power drive requirements can be supplied direct from the distributor's stock.

Look in the classified telephone directory under "Power Transmission Equipment" for your Transmissioneer's name and number. Call him for advice — without obligation.

DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA



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To obtain his diploma every Transmissioneer must pass an intensive course of training at the Dodge factory. Lectures, classroom work and practical demonstrations of power transmission problems make up the course.



THE SYMBOL THAT CAME TO LIFE

257 factory graduate Transmissioneers wear this sign of a nation-wide personal service that helps you put all your power into the job.

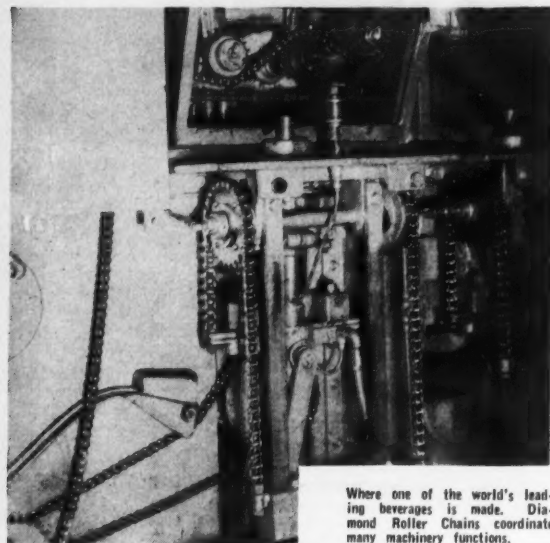
FOR YOUR NAME PLATE REQUIREMENTS, WRITE OUR SUBSIDIARY, ETCHING COMPANY OF AMERICA, 1520 MONTANA STREET, CHICAGO 14, ILLINOIS

When inquiring specify CP A4901 . . . see information request blank, pgs. 2-3

MANY FUNCTIONS COORDINATED

Bottle Cleaning, Brushing, Conveying, Filling — and numerous other functions are all coordinated for High Speed Production

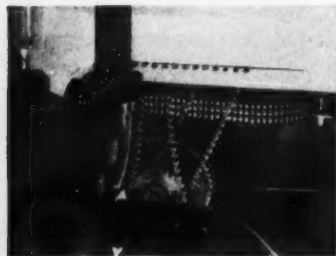
BY DIAMOND DRIVES



Where one of the world's leading beverages is made, Diamond Roller Chains coordinate many machinery functions.

The tremendous everyday production of beverages would not be possible without the special machinery set up in bottling plants all over the world. On much of this machinery, DIAMOND Roller Chains are employed for many functions.

For such service the adaptability, long life, great endurance, smoothness and high power transmitting efficiency (98-99%) of Diamond Chains are necessary, to keep output at a maximum and maintenance to a minimum.



Small portion of bottle washing machinery showing some of the Diamond Chain applications.

Diamond Roller Chain Drives can help you make improvements — and insure the best possible performance. They simplify design, do not slip or creep, save power, reduce the number of shafts required and are suitable for drives large and small, high speed and low — drives that keep running year after year. DIAMOND CHAIN COMPANY, Inc., Dept. 411, 402 Kentucky Avenue, Indianapolis 7, Indiana. Offices and Distributors in All Principal Cities.

Our engineering staff is ready to make recommendations and our Catalog 595 containing 28 pages of helpful data will be forwarded promptly. Write today.

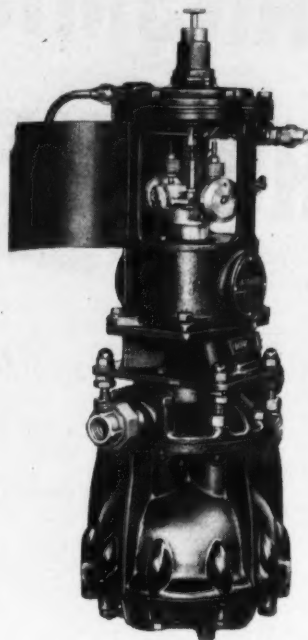
DIAMOND ROLLER CHAINS

When inquiring specify CP A4902 — see handy form pages 2-3

Instruments

Transometer Meters Fuel Oil and Viscous Fluids Accurately

Metering accurate for high and low flow rates — does not stall at low flows



Piston type positive displacement meter drives transometer

er assures operation at low flows and the unit meters accurately at high and low flows. Changes in viscosity, temperature or pressure do not affect accuracy. Meter will not stall at low flow. Carbon pistons in the meter body are easily replaced.

Description — Operating directly from the metering system, the transometer converts the rate of rotation of the positive displacement meter into an air impulse or signal, which can be used on a regulator, indicator or recorder. The positive piston type displacement meter drives the transometer to develop this signal. The air impulse developed, proportional to the fluid metered, is in the range of 12" W.C. and this pressure is imposed on measuring instrument or control device. Complete details are contained in Bulletin 111 which is available on request.

ASKANIA REGULATOR CO., Dept. CP, 1603 S. Michigan Ave., Chicago 16, Ill.

When inquiring specify CP A4903 — see handy form pages 2-3

Servo Motor is Compact; Requires Small Space

Motor has low inertia — 60 cycle, 2 phase

Uses — Especially designed for remote control applications and small space requirements.

Features — Impedance is practically constant from full speed to stall, and the standard stall torque, 1½ oz. in. can be changed as required. Stack length may be changed

Uses — For the measurement of fuel oil and other viscous fluids where other metering means are not sufficiently accurate. The device is used in combustion control applications where the fuel is oil — and for flow control and continuous proportioning applications.

Features — The transometer, long used in metering and control applications, now employs a new development in positive piston type displacement meters. This meter makes it impossible for fluid to pass through it without registering. Ample power

FOR VALVE REMOTE CONTROL



Chemical
Paper
Foods
Petroleum

HILLS-McCANNa diaphragm valves with Westinghouse Flex-air and Controlair Controls

HERE'S an efficient and practical way to control valve operations from any convenient point in your plant . . . with Hills-McCanna air-actuated valves. This unit combines the proved principle of the Hills-McCanna Diaphragm Valve with Westinghouse Flex-air and/or Controlair Controls and air-operated piston to give you smooth control . . . fingertip service at all times.

And since this new Hills-McCanna unit . . . like all Hills-McCanna valves . . . has no packing, there's no sticking of the stem to interfere with easy, accurate positioning.

For ordinary open and close valve operation the Hills-McCanna unit is used with Flex-air Controls. Dependable throttling service may be had with Controlair and Flex-air Controls and a Hills-McCanna Diaphragm Valve and Piston operation.

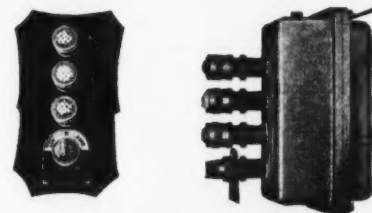
This improved type valve is available in sizes from 4" to 12" inclusive. Send today for complete data on installation and operation.

HILLS-McCANNa COMPANY
2370 W. Nelson St., Chicago 18, Ill.

Proportioning Pumps — Force Feed Lubricators — Chemical Valves
Air and Water Valves — Marine Valves — Magnesium Alloy Castings

When inquiring specify CP A4904 — see handy form pages 2-3

New UNILARM The Unitized Alarm System



Unilarm, the factory built, standardized alarm system combines in one unit the many features essential for complete protection — unfailing in operation, easy to maintain.

Reduces installation costs to a fraction of previous systems.

Russell & Stoll's 45 years of specialized experience insures a product worthy of your confidence.

Bulletin U-46 on request.

EXPLOSION-PROOF VAPORTIGHT GENERAL PURPOSE

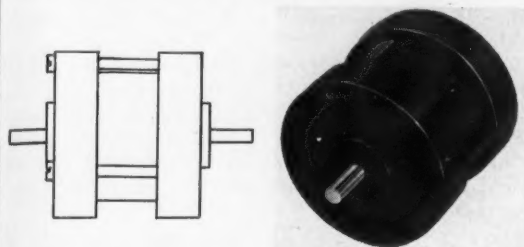


RUSSELL & STOLL COMPANY, INC.
PRECISION BUILT ELECTRICAL EQUIPMENT
125 BARCLAY STREET • NEW YORK 7, N. Y.

When inquiring specify CP A4905 — see handy form pages 2-3

Instruments

plus or minus 50% to suit torque requirements. This will change the overall length a maximum of $\frac{3}{8}$ in. **Description** — Designated as Model 2A Servo-Motor, this unit does not run single phase and the fixed phase may be continuously energized. It can be wound to operate



Servo-motor is midget sized

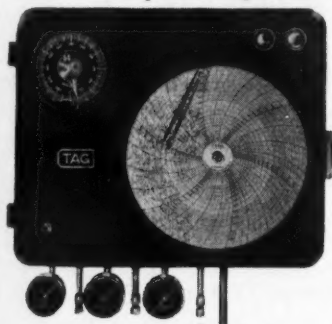
from 10 to 80 volts, or more; 60 cycles. The Servo-Motor is furnished with separate leads for each phase; terminal board may be attached to rear of motor, if required. Designed for small space application, the Servo-Motor is a midget sized unit that fits inside your hand. Bulletin and performance charts will be supplied on request.

TRANSICOIL CORP., 114 Worth St., New York, New York.

When inquiring specify CP A4906 — see handy form pages 2-3

Retort Recorder Controller is Fully Automatic

Adjustable cam times operation automatically; used with steam processing or water under pressure



Tagliabue automatic recorder-controller

Uses — Adaptable to many processes involving the control of temperatures and pressures in the manufacture of rubber, plastics, chemicals and textiles, this instrument is also useful in the food industry.

Features — Operation is fully automatic.

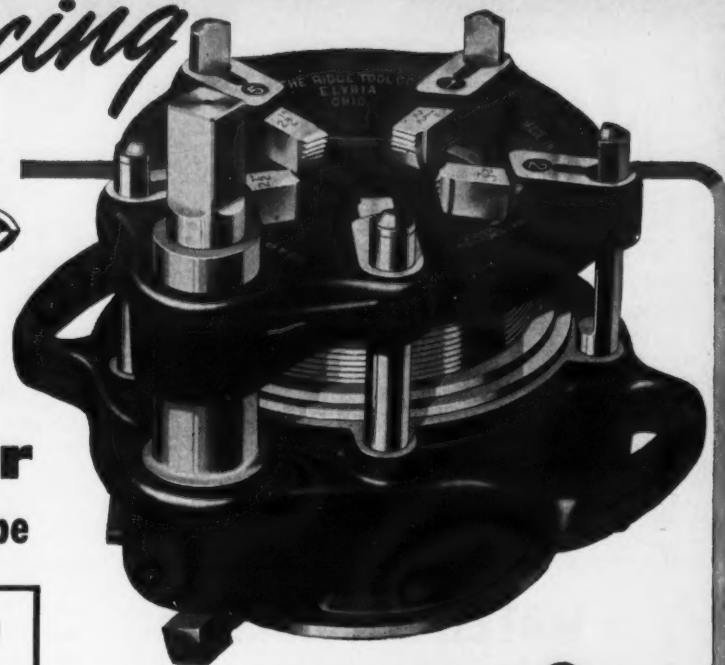
Description — This instrument requires only the push of a button to control processing completely from start to finish. By use of an adjustable cam, timing starts automatically when the temperature reaches the processing point and is terminated at precisely the desired moment. All valves, whether steam, air, water or overflow, are opened and closed as the process may require without manual attention of any kind. A red light glows on the controller during the entire steam-heating phase of the process. When heating has been completed and steam has been shut off, the red light is extinguished and a white light appears. After sufficient time for cooling has elapsed the white light goes out, indicating visibly to the operator that this cycle has been completed. Suitable for processing with steam or water (with slight changes.)

PORTABLE PRODUCTS CORP., Dept CP, C. J. Tagliabue Div., Park & Nostrand Aves., Brooklyn 5, N. Y.

When inquiring specify CP A4907 — see handy form pages 2-3

Announcing the new RIGID No. 4P Geared Threader for 2½" to 4" pipe

New ease of handling
New smoother, easier
threading
New bother-free upkeep
New long life of
efficient service



Quick-setting
mistake-proof
workholder



Loop handles make new 4P
extra easy to put on pipe.



● Here's the new 2½" to 4" die stock you have been wanting. It's full of the work-saver advantages you expect of a RIGID Pipe Tool.

Comfort-grip loop handles balance it easily — no slipping or tipping over. Easy to carry with one hand, easy to lift and put on pipe... RIGID plate type workholder quickly sets to pipe size *before* you lift it, tightens on pipe with *one* screw — and no bushings to fool with or lose.

Easy upkeep, too — drive pinion shaft turns in oilless bronze bearing, never needs oil. Enclosed gear protects you, keeps out dirt. Drive pinion is solidly twin-anchored to face plate and gear housing; four sets of 5 high-speed steel chaser dies cut clean standard or tapered threads, drip threads, short nipples. RIGID universal drive shaft available for power drive; ratchet handle with each threader.

It's RIGID design and quality throughout — for great performance and durability. Write today for the whole story — see the new 4P at your Supply House.

Loop handles on
gear cover for easy
non-slip handling

Twin-anchored
drive pinion-shaft
turns in oilless
bronze bearing

5 chaser dies

Fully enclosed
gear

New 4P is extra
easy to carry.



Millions of RIGID
Tools in use

RIGID

WORK-SAVER PIPE TOOLS

The Ridge Tool Company
Elyria, Ohio, U. S. A.

When inquiring specify CP A4908 . . . see information request blank, pgs. 2-3



When You Need WATER-MISCIBLE

- DDT CONCENTRATES
- CUTTING OILS
- METAL CLEANERS
- COOLANTS, ETC.

Designed to give spontaneous and relatively stable O/W emulsions when dissolved in: Chlorinated Solvents, Benzene, Toluene, Xylene, Aromatic Coal Tar or Petroleum Solvents, "White Mineral Oil," Oxygenated Solvents, etc.

WHAT IS YOUR PROBLEM?

Fill and mail the coupon below and with no obligation whatever we'll forward you the most effective answer.



THE EMULSOL CORPORATION
59 EAST MADISON STREET • CHICAGO 2, ILLINOIS

Gentlemen:

What do you recommend to

emulsify _____ % _____ in
(solvent)
_____ % water?

Firm _____

By _____

Address _____

City _____ Zone _____ State _____

We Make _____

73

When inquiring specify CP A4909 — see handy form pages 2-3



New Materials

Aliphatic Amines, Amides and Nitriles and Their Uses

Ore flotation, cationic emulsification, and plasticizing of synthetic rubber among the many established applications

Uses — These long chain "Armeens" (high molecular weight aliphatic amines) are long chain amines which are obtained from fatty acids by a series of chemical reactions. Fatty acids are well known and supply industry a range of acidic organic chemicals for industry. Now industry is offered the same range of basic chemicals, opening a new field to the industrial chemist and compounder. These "Armeens" and their acetates are used extensively in flotation. Belonging to the cationic type of reagents, they are finding application in a wide variety of flotation operations. They are the base for many of the new high potency quaternary salt germicides. Emulsification and sterilization may be accomplished at one and the same time. They offer an excellent starting point for the preparation of quaternary ammonium salts.

Description — These "Armeens" are described in a new bulletin which gives composition, constants, chemical properties and typical uses. A series of "Armeens" are available varying from liquids to solids at room temperature. A range is offered since the amines vary in their ability to perform specific functions. In the bulletin, a table shows the primary amines offered. A few of the series of secondary and tertiary amines are offered but are not listed. Research is continuing on the manufacture of a complete series similar to the primary series. The amines themselves are soluble in alcohol, chlorinated solvents and mineral spirits. The amine acetates are soluble in both water and oil. "Armac" is this maker's trade name for the acetates made by treating the amines with glacial acetic acid. There is a corresponding "Armac" for every "Armeen". For example, "Armeen" 12 becomes "Armac" 12 when neutralized with glacial acid. The bulletin provides a neutralization chart.

Uses — The second of this group of three fatty acid derivatives is named "Arneels" which identifies a class of organic cyanides. Recent patent literature states that nitriles act to increase the detergent power of sulfonated and sulfated detergents. The "Arneels" exert a metal wetting tendency when added to mineral oils. They have a rust-inhibiting tendency when added to certain types of compounds for use on metals. Also of interest is their indicated use as plasticizers for rubber and plastic products.

Description — The "Arneels" are offered commercially and experimentally. Since the fatty acids are composed of straight, normal carbon chains, the nitriles have the same chemical configuration. Toxicity: these high molecular weight aliphatic nitriles are not toxic, but they are not palatable. The same types but of less purity and in undistilled form may be had upon request. Bulletin gives essential technical information.

Uses — The third of this group is identified by the name "Armids". These high molecular weight amides are high melting, wax-like materials. "Armids HT" for example, when used in small amounts of printing inks tends to "pull them together," and decreases spread leakage on the paper. Also of interest, is the fact that "Armids" are "all-weather,

anti-scratch" materials and will not "oil-out" under summer conditions. Vinyl chloride acetate resins and ethyl cellulose resins are typical of the resins that "Armids" will anti-block.

Description — The chemically pure amides are water soluble and neutral. Commercially, the "Armids" may contain a few percent of the unreacted fatty acids from which they are made. They vary in physical properties from a substance which can be flaked like stearic acid, to a soft paste. Bulletin gives technical details. All three bulletins are available in request.

ARMOUR & CO. (Chemical Div.) Dept. CP, 1355 W. 31st St., Chicago, Ill.

When inquiring specify CP A4910 — see handy form pages 2-3

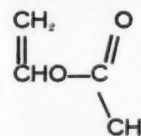
Coatings Resist Mineral Acids, Alkalies and Corrosive Gases

Withstands temperature (to 212° F.) and cold, humidity, abrasion; brush, dip or spray application

Uses — Gives protection to widely diversified types of equipment and surfaces. Generally the applications may involve metal, wood, concrete, brick, plaster, floor materials. Representative uses include: acid, alkali, and salt base

UNPOLYMERIZED VINYL ACETATE

(STABILIZED)



Boiling Range 71.8° to 73°C.

Vinyl Acetate can be polymerized to form resins with exceptional bonding qualities for wood, glass, metal and fibre

Containers:—

410 lb. drums; 62,500 lb. tank cars
For further information write to:

NIACET

CHEMICALS DIVISION

Sales Offices

926 Niagara Building • Niagara Falls, N. Y.

When inquiring specify CP A4911 — see handy form pages 2-3

Materials

storage, several standard makes of filters, numerous types of sugar and syrup tanks, crystalizers, drum linings and platers' tanks, animal gut processing troughs and tables, pipe lines for aggressive chemicals, air washing equipment, ducts, fans and blowers, steel structural work, food equipment and many types of machinery.

Features — The film of this coating is tough and tenacious; abrasion resistant to normal action, does not chip; does not ignite when thoroughly dry; withstands shocks due to temperature changes. High insulating value. The dielectric resistance is increased by the use of additional coats. High resistance to moisture thus offering high vapor proofness. Composition of coating is such that through the thorough evaporation of solvents the coating can be completed in the presence of heat, air, moisture, acids and alkali fumes.

Description — This coating, known as Fedelco FE — 70 Liquid Plastic Coating is composed of the most inert plastic resins. The properties of these resins are such as to insure almost a permanent resistance against mineral acids and alkalis and their salts. Various vehicles for the coating have been designed. Some of the information necessary to obtain the correct vehicle is (a) composition of the surface to be coated; (b) analysis of chemical solutions plus percentages; (c) minimum and maximum operating temperatures, etc.

The FE-70 Series acts as a primer, therefore, requires only the application of itself in multiple coats. In no case is less than two coats recommended. The coating may be applied by brushing, dipping or spraying. It is under the latter two applications that it is necessary to thin the coating with FE-70 Thinner only. In preparing surfaces, — metal, wood, concrete, etc., oil grease and moisture must be removed.

The coating resists organic acids and their salts, inorganic acids and their salts, alcohol, petroleum products and derivatives, except aviation gasoline. It is also resistant to the following gases: chlorine, sulphur dioxide, hydrogen sulphide, flue gases and carbon dioxide.

The coating will not withstand aromatic hydrocarbons; will not withstand concentrated hydrochloric acids, sulphuric, nitric acids, some of the ethers and esters, ketones, strong acetic acid, chlorinated hydrocarbons, strong oxidizing acids. Detailed information on Fedelco FE-70 on request.

PLASTIC LINING CORP., Dept. CP, 914 South Wabash Ave., Chicago 5, Illinois.

When inquiring specify CP A4912 — see handy form pages 2-3

Colloidal Graphite As A Control For Static Electricity On Belts

Static electricity has long been a hazard in dust laden atmosphere. Charges are stored on belts because of the friction encountered due to slippage, air movement, and high speed flexing of the belts themselves. A bulletin is available which sets forth a solution to this problem.

Quick drying solvents have colloidal graphite dispersed in them and the mixture is thinned with carbon tetrachloride. The mixture is applied with a carbon brush which serves as a contact between the belt and ground. The film thus applied serves as a conducting medium between belt and brush, completing the circuit to the ground.

Formulas for thinning are given and a diagram showing a proper installation is included. Copies available on request.

ACHESON COLLOIDS CORPORATION, Dept. CP, Port Huron, Mich.

When inquiring specify CP A4913 — see handy form pages 2-3

see how you can use Monsanto Aroclors ... profitably

As a series, the Aroclors range in form and appearance from mobile oily liquids to fine white crystals and hard transparent resins. They are heavier than water—possess great adhesiveness, especially on smooth surfaces—have remarkable penetrating power—are water repellent and flame resistant. Their ability to withstand extreme pressure is unusual—some have exceptional lubricity.

Monsanto Aroclors comprise a series so versatile in their application that they serve scores of industries in hundreds of profitable ways . . . See how they can benefit you—send for a copy of Bulletin No. P-115, containing chemical and physical characteristics and application data on the Aroclors. Also—

Ask particularly about 4 new Aroclors, recently added to the series: Nos. 1221 and 1232, characterized by their unusually low viscosity—Nos. 5465 and 5468, high melting point resins. Full information is available to help you determine suitable applications.

Contact the nearest Monsanto Office, or write: MONSANTO CHEMICAL COMPANY, Phosphates Division, 1700 South Second Street, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Cincinnati, Charlotte, Birmingham, Los Angeles, San Francisco, Seattle, Montreal, Toronto.

TWO OF MANY USES OF THE AROCLORS



Chlorinated Rubber Finishes . . . Used as plasticizers for chlorinated rubber, Aroclors add both toughness and flexibility; resist acid.



Paints . . . Varnishes . . . Aroclors contribute excellent durability and varying degrees of flexibility or hardness in quick-drying paints.

**MONSANTO
CHEMICALS**

SERVING INDUSTRY...WHICH SERVES MANKIND

When inquiring specify CP A4914 . . . see information request blank, pgs. 2-3



SATURDAY NIGHT BATH FOR A STREAMLINER

Even a streamliner has to take a "Saturday Night" bath to keep sleek and shiny . . . and that's no small undertaking. It's usually accomplished by swabbing the stainless steel exterior with an acidic cleaning solution which is subsequently rinsed off with water.

One large railroad company recently observed that ordinary cleaners did not provide the desired cleaning action. Furthermore, there was definite evidence of corrosion. Investigation by Victor's research laboratories revealed that of all acids tested only a dilute solution of phosphoric acid would efficiently clean the cars and restore the bright finish of stainless steel without harmful corrosive action.

Solving production or maintenance problems with phosphorous compounds is a major activity of Victor's research laboratories. Next time you are confronted with a problem, think first of Victor. It pays!

PARTIAL LIST OF VICTOR CHEMICALS

Acids . . . formic, metaphosphoric, oxalic, phosphoric, polyphosphoric.	Phosphorus . . . (yellow)
Formates . . . aluminum, sodium, sodium borate.	Ferrophosphorus
Metaphosphates . . . aluminum, ethyl.	Phosphorus Compounds . . . chlorides, pentoxide, organics.
Orthophosphates . . . ammonium, calcium, iron, magnesium, potassium, sodium.	Pyrophosphates . . . calcium, sodium acid, sodium iron, tetrapotassium, tetrasodium.
Oxalates . . . calcium, sodium.	Sulphates . . . magnesium, sodium aluminum.
	Wetting Agents

VICTOR CHEMICAL WORKS

141 W. Jackson Boulevard, Chicago 4, Ill.

NEW YORK, N. Y.; KANSAS CITY, MO.; ST. LOUIS, MO.; NASHVILLE, TENN.; GREENSBORO, N. C.
PLANTS: NASHVILLE, TENN.; MT. PLEASANT, TENN.; CHICAGO HEIGHTS, ILL.; VICTOR, FLA.

Got a Problem?

THINK FIRST OF
VICTOR
CHEMICALS

When inquiring specify CP A4915 . . . see information request blank, pgs. 2-3

Materials

Methionine, Essential Amino Acid in Larger Quantities at Low Cost

Commercial process for synthesizing makes product available to drug manufacturers

Uses — Methionine, one of the amino acids considered essential for growth of men and animals is now available in much larger quantities through a recently developed process. It has various important medical uses and other possible applications are now under study. In the treatment of peptic ulcers, as well as in the care of starvation cases in Europe, amino acids as present in the "so-called predigested proteins," are reported to have enjoyed great success. One of the major uses made possible by this increased supply of methionine is in fortifying these compounds to further increase their effectiveness.

Features — Methionine has previously been available in small quantities at a cost of several hundred dollars a pound. The new process, developed by U. S. I. Chemicals should reduce the cost about 97%.

Description — As one of the essential amino acids, methionine is a strictly exogenous substance which cannot be synthesized by the human or animal body, and in consequence must be incorporated in the diet. Its best source is milk and dairy products such as cheese. Proteins of vegetable origin are, as a rule, poor in methionine. Insufficient intake of methionine leads to liver injury. Poisonings from a variety of chemicals which concentrate their attack on the liver have been treated successfully with methionine. In the past, experimental quantities of methionine have been produced from the organs of sheep and cattle and by high cost, small scale laboratory processes. This new synthetic, which possesses all the properties of the natural product is being supplied ONLY to the drug and pharmaceutical manufacturers.

U. S. INDUSTRIAL CHEMICALS, INC., Dept. CP, 68 East 42nd St., New York, N. Y.

When inquiring specify CP A4916 — see handy form pages 2-3

★

Mercerizing Assistant Eliminates Preliminary Boiling-Out

Used in caustic soda solutions — 48° Tw to 58° Tw high degree of wetting speed

Uses — This new member of the "Dypenol" series of mercerizing assistants eliminates preliminary boiling out of the yarn or fabric. Recommended for use in caustic soda solutions ranging in strength from 48° Tw to 58° Tw it also prevents foaming in the recovery of the caustic.

Features — The use of this assistant permits higher mercerizing speeds without decrease in the degree of mercerization. It has a high degree of wetting speed and does not lose its power through exhaustion onto the goods nor outstanding in the caustic.

Description — This new assistant, known as "Dypenol Sed," is added directly to the mercerizing caustic. The organization's new facilities make possible improved efficiency in "Dypenol" and manufacture under better control than ever before. Detailed information and consultation regarding new phases of mercerizing work is offered.

DEXTER CHEMICAL CORP., Dept. CP, (Textile Div.) 819 Edgewater Road, New York 59, N. Y.

When inquiring specify CP A4917 — see handy form pages 2-3

Materials

Emulsion for Coating Fabrics & Papers

Designed for use in plasticizing of Buna N films and the polyvinyl chloride latices

Uses — For use in plasticizing of Buna N films and the polyvinyl chloride latices, such as the Geon latex series used in the treatment of fibers may be pigmented to give coated fabrics a variety of colors, with ease of application and absence of flammable or expensive solvents greatly widening its application in the plasticizing field. Although this new resin emulsion, known as G-25 is being used for the modification of a variety of polymers, one of its most important applications to date is in polyvinyl chloride latices. Its properties suggest a variety of applications wherever an aqueous dispersion of Paraplex G-25 is required.

Descriptions — Emulsion G-25 is characterized by non-migration, permanence, resistance to heat and hot oil, and by flexibility at low temperatures. The emulsion is a white, medium to low viscosity fluid with the following physical properties: Solids 48-52%; pH, 9.0 to 9.5; lb. per gallon, approximately 8. The emulsifying agent used in its manufacture is of the non-ionic type, producing an emulsion with enhanced stability toward electrolytes and an ability to be blended with other emulsions with greater safety since the emulsifying agent is not precipitated by cation or anion active dispersing agents. The general properties of this aqueous dispersion of Paraplex G-25 suggest a wide variety of applications. A typical preparation is 50 parts of emulsion G-25 (50% solids) and 50 parts Geon latex (11x15 and 11x24 50% solid), flowed out and dried for five minutes at 80-85° C. Films heated for five minutes at temperatures ranging between 85 and 150° C produce physical properties approaching those obtained by milling an equivalent G-25 Geon stock. In pigmenting coated fabrics, desired results are obtained by preparing a paste of the pigment in water using Triton r-100, a dispersing agent (produced by an associate of this organization — Rohm & Haas). The dispersing pigment then can be compounded readily with the emulsion mixture.

RESINOUS PRODUCTS & CHEMICAL CO., Dept. CP, Philadelphia, Pa.

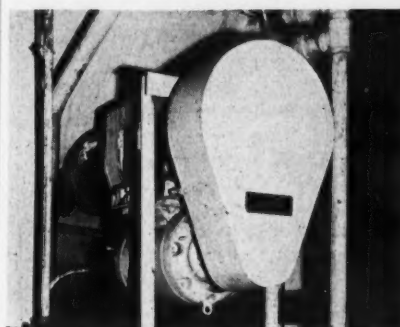
When inquiring specify CP A4918
— see handy form pages 2-3

For more information on product at right, specify CP A4919
... see information request blank between pages 2-3.

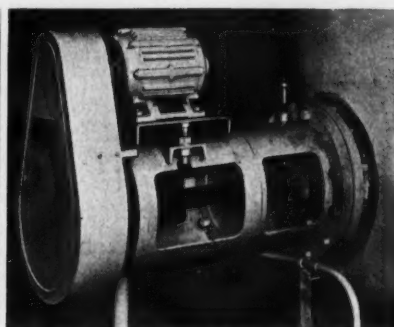
HOW TO SELECT THE Right Mixer for LARGE TANKS...

The size and capacity of a mixer are important factors in selecting a mixer for mixing or agitating large volumes of liquids in large tanks. But they are only two of many factors involved in Process Adapted Agitation as practiced by Mixing Equipment Engineers. The proper mixers adapted specifically to your particular process

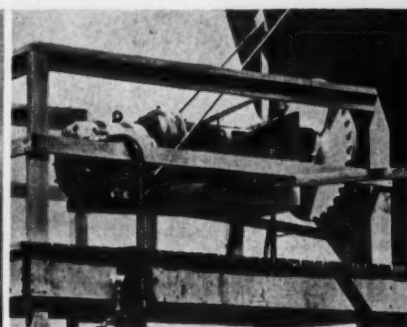
under your plant conditions will reduce wear, permit needed maintenance without removing from tank and decrease the amount of servicing required. For example, you should have the answers to these important questions before you decide on exact mixing equipment specifications.



Compact Vee Belt drive unit showing adaptation to cone bottom tank.



Used for "no head-room" condition. Note access to stuffing box.



Gear Motor Drive unit on large tank for outdoor use.

WHAT TYPE OF DRIVE?

GEAR MOTOR UNIT—Model SEG

Recommended for Outdoor Installations, Hazardous Locations, where Static is feared or for Gritty Atmospheres.

The unit is complete, consisting of propeller, shaft, integral stuffing box, bearing member, flexible coupling, gear motor or gear reducer, welded steel reinforced support (bucket type), pipe support legs with flange footings, or tie rods and turnbuckles. Thrust is carried by heavy duty ball bearings—not transmitted to gear motor. Open, Splash-proof, Totally Enclosed or Explosion-proof motors are available. Weight operated Grease Cup shown.

VEE BELT (or Chain Drive) UNIT—Model SEV

Recommended where quietness is desirable and interchangeability of motors is important. If Vee Belt Drive is used outdoors, unit must be protected from the weather.

Speeds may be changed by changing

ing pulleys or a vario-speed pulley can be furnished, permitting a 25% speed variation by manual adjustment of driving pulley sheave. Special belts to conduct static electricity are available. This unit is also furnished with motor underslung for cone bottom tanks.

Unit is complete, consisting of a propeller, shaft, bearing member, welded steel support bracket, outside ball bearings.

MOTORLESS UNIT—Model SEM

This unit is recommended for Experimental Jobs or where economy must be given consideration over convenience or compactness, or where it is desired to utilize motors, drives or other parts which you may already have on hand.

The unit consists of the same quality parts and design of bearing member as other models but is furnished without belts, pulleys or drives of any kind.



Where to use Side Entering Mixers

For large tanks, for tanks where top must be kept clear, and for installation where head room is limited—these are the places where "LIGHTNIN" Side Entering Mixers can be used to advantage. Primarily designed for large tank application, they are also suited for use in smaller tanks where top entering mixers are not practical.

"LIGHTNIN" Side Entering Mixers are built in capacities from 1 to 25 H.P. This permits their use singly or in multiple to handle mixing jobs of any capacity. The adaptability of "LIGHTNIN"

Side Entering Agitators and the ability to do a thorough job of agitation have made mixing light liquids in tanks as large as 5,000,000 gallon capacity practical and efficient.

Blending Miscible Liquids	Mixing Immiscible Liquids	Crystal Size Control	Gas Absorption and Dispersion	Suspension Solids	Heat Transfer
Simple Mixing of soluble liquids as in reducing concentration	Washing of Liquids Extraction Contacting Coating Treating Emulsions	Precipitation Evaporation Systems	Hydrogenation Aeration Gas Scrubbing Chlorination Gas Washing	Slurries Slaking Lime Suspension of: filter aid, activated carbon, fillers, earths, Crystals while dissolving	Still Evaporators Reactor Vessels Heating Cooling

MIXING EQUIPMENT CO., INC.

1085 Garson Avenue Rochester 9, New York

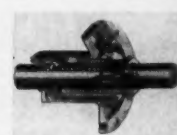


Process Adapted Agitation

It is necessary to furnish an external support for this mixer, a bracket being provided at outer ends for bolts or lag screws. Shown with Grease Cup.

WHAT TYPE OF STUFFING BOX?

These "Lightnin" Stuffing Boxes are a complete departure from previous designs. They are completely repackable from outside the tank. The shaft is mounted on protected ball bearings outside the tank. Shaft and packing are lubricated by constant pressure. The shafts are hard surfaced where metal permits. There are four types to meet special operating conditions.



TYPE II for non-abrasive conditions; repackable outside of full or empty tank.



TYPE III for abrasive conditions; repackable from outside empty tank.



TYPE IV for light duty conditions and where liquid in tank has lubricating properties. Repackable from outside empty tank.

Mixing Equipment Co. Offers

Complete coverage of industrial areas with service for both individual user and engineers or equipment manufacturer. Assumption of responsibility for selection of mixer size, types, performance, characteristics within limits of existing technology.

The Basis of our Recommendations

Twenty-five years of experience have resulted in an organization, research facilities and skill which qualify Mixing Equipment Company as a leading authority in the whole broad field of agitation.

Mixing Equipment Company offers its services in the solution of any problem involving controlled recirculation of liquids to produce physical and chemical changes, as included in the following table:

MIXING EQUIPMENT CO., INC.

1085 Garson Ave., Rochester 9, N. Y.

Please send me the literature checked:

- ☐ B-66 and B-76 Side Entering Mixers
- ☐ B-68 and 68B Permanently Mounted Mixers for Pressure Vessels and Open Tanks
- ☐ B-75—Portable Mixers (Electric and Air Driven)
- ☐ B-77—Laboratory Mixers
- ☐ Mi-11—Operating Data Sheet

Name _____

Title _____

Company _____

Address _____



EAGLE SUPERTEMP BLOCK INSULATION is easy to apply!



Eagle Supertemp Block is lightweight, easy-to-handle. It cuts like cheese with a knife or saw; fits snugly over most minor irregularities. Its Mineral Wool is literally honeycombed with dead air cells, highly effective heat barriers.

A few Supertemp Block advantages

All-purpose. Easy to apply, only one type block needed.

High Refractory Value. For temperatures up to 1700° F.

Permanent. Physically and chemically stable, durable.

Data Sheets with technical information are available.

Other Eagle Industrial Products include:

Eagle Insulstic. A strong adhesive that holds insulation in place during application. For use with Supertemp Block.

Eagle Insulseal. A tough, protective coating for insulation. Trowels on—dries to a hard finish. For up to 450° F.

Eagle Swatchek (black). A prepared, asphaltic base, rust-inhibitive anti-condensation compound. Insulates, absorbs.

Eagle "43" Finishing Cement. A hard, white finish coating for all types of indoor insulation within a temperature range of from 70° F. to 800° F.



EAGLE-PICHER INSULATIONS
High and Low Temperature

Made by THE EAGLE-PICHER COMPANY
CINCINNATI (1), OHIO

When inquiring specify CP A4920 — see handy form pages 2-3

Materials

Automatic Process Makes Clear, Pure Brine; Cuts Salt Use 20%

Combines dissolving rock salt without agitation and a means of self-filtration

Uses — In soap making, paper manufacturing, leather tanning, in dyeing, in textile, hosiery mills, in steel plants and in many process industries; in plants using brine for regenerating zeolite water softeners. In refrigeration, re-strengthening spray brine applications.

Features — Economy: four major savings in lowered labor costs for handling salt; no labor or power costs in mixing brine; reduced costs in distributing brine throughout the plant; savings of 10% to 20% in amount of salt required. Production of brine is rapid and automatic with convenient adequate supply of brine at all times. Brine is crystal clear, fully saturated, bacteriologically clean and chemically pure beyond highest authoritative requirements. Elimination of bridging, caking, channeling and similar troubles in regenerating zeolite water softeners. Installation is adaptable to any brine requirements or structural requirements.

Description — The Lixate process of making brine is an automatic method of producing pure, clear, filtered fully saturated brine from Rock Salt. The Lixate process combines a method of dissolving Rock Salt without agitation and a method of self-filtration. The entire process of dissolution and filtration takes place within the Lixator unit. For continuous, self-feeding salt supply a hopper for salt

PROTECT

Your Operatives and Equipment
From STATIC

Lovejoy Tobin Bronze Coupling insulated
by rubber spider Eliminates Possibility
of Spark!

Chemical, oil, paint and varnish and many other industries require special protective couplings.

Dielectric Tobin Bronze L-R Flexible Couplings can not spark under any conditions. Trouble free. Require no lubrication; quiet operation.



L-R Type "A" 1/6 to 40 H.P.
Pat. and Pats. Pending.

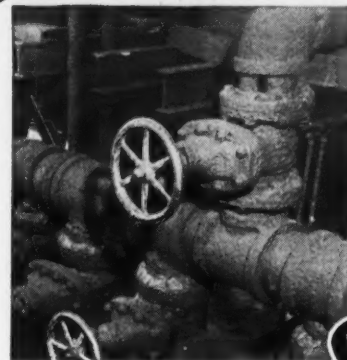
LOVEJOY L-R Flexible Couplings

WRITE FOR CATALOG OF COUPLINGS
1/6 TO 2500 H.P.

LOVEJOY FLEXIBLE COUPLING CO.
3072 WEST LAKE STREET CHICAGO 44, ILL.

When inquiring specify CP A4921 — see handy form pages 2-3

STOP CONDENSATION DRIP - PREVENT CORROSION



Try this
tested
plastic
cork
coating

INDUSTRIAL
NoDrip

A SURE CURE—NoDrip, used and endorsed by leading industrial firms, forms a permanent, seamless jacket around pipes, tanks, vats, etc.; shuts out heat, cold, air, moisture; stops condensation dripping; prevents corrosion and rust. Acid, alkali and brine resistant. NoDrip protects and prolongs life of equipment, reduces costly maintenance and replacements. A trial in your plant will prove its merit. 1, 5 and 55 gal. drums. Order from your Supply House.

EASY APPLICATION

Applied like plaster with brush, trowel or spray. Adheres to metal, cement, brick, wood.

NoDrip Handbook on Request

J.W. MORTELL CO.

Technical Coatings Since 1895

530 Burch St. Kankakee, Ill.

When inquiring specify CP A4922 — see handy form pages 2-3

WAXES CARNAUBA OURICURY CANDELILLA

CRUDE AND REFINED

DOMESTIC

OZOKERITE AND CERESINE

Write for Bulletin C P

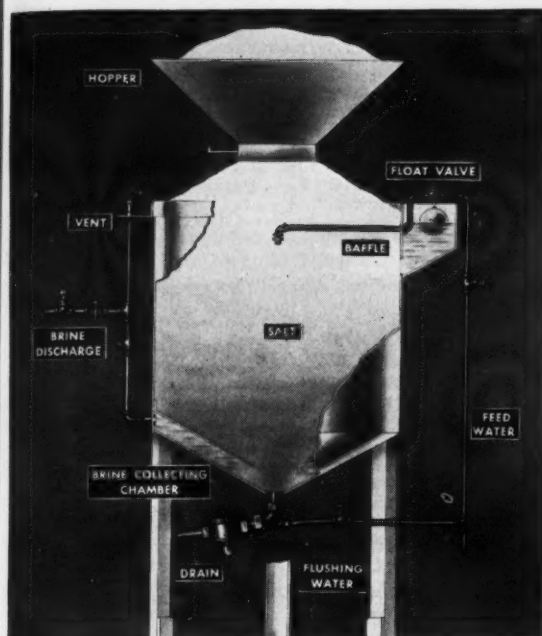


DISTRIBUTING & TRADING CO.
444 MADISON AVENUE • NEW YORK 22

When inquiring specify CP A4923 — see handy form pages 2-3

storage is installed above the Lixator, and a storage tank for brine is necessary.

Salt is handled only once — when it is placed in the hopper above the Lixator. Where conditions permit an installation of the Lixator directly underneath the salt storage bin or room is an advantage. Salt need not be handled at all, after it is unloaded from the railroad car. This provides a great savings over the practice in some plants of trucking or carrying salt from the point of storage to tanks, vats,



Lixator provides constant supply of pure brine

drums or other containers throughout the plant. The illustration shows a cross-section view of the Lixator used in the Lixate process. It shows gravity flow of salt from hopper to Lixator; fresh water flow to spray nozzle, with float valve control; upward flow of brine through the collection chamber to the brine discharge pipe; also the pipe arrangement for flushing out insoluble residue.

The Lixate process can be installed in any plant, no matter what restrictions of space may be. In addition to the hopper type and general type (employing flow from floor or bin above) special constructions are used. Some such installations warrant the construction of separate building units. Installations are engineered to meet any requirement. A large textile company uses a special "silo type" Lixator. Salt unloaded into a conveyor is carried to the silo mechanically. Brine production is completely automatic from the time salt is unloaded until the turn of a valve provides pure brine at point of use. The "silo type" Lixator has the most economical form of dry salt storage bin ever devised. The salt storage silo is placed on top of the salt dissolution tank, using the Lixate principle, and the entire silo contents sink by gravity into the Lixator just as fast as used. (This is an exclusive design developed by the International Salt Co. and all rights are reserved.) Complete information on the Lixate process and its application to individual requirements on request.

INTERNATIONAL SALT CO., Dept. CP, Scranton, Pa.

When inquiring specify CP A4924 — see handy form pages 2-3

JULY-AUGUST, 1946

Try this NEW SURFACE-ACTIVE AGENT

CHARACTERISTICS

Oil Soluble	Nonmetallic
Heat Stable	High Flash Point

USED FOR

Pigment Grinding	Metal Primers
Wool Carbonizing	Metal Cleaners
Hydraulic Oils	Polishes
Quenching Oils	Lubricating Greases
Textile Penetrants	Rust Inhibitors

COMMERCIAL SOLVENTS Corporation
17 East 42nd Street, New York 17, N. Y.

ALKATERGE-C is an oil-soluble, cationic surface-active agent which has been found useful in the preparation of a wide range of products including lubricants, polishes, cleaners, and textile penetrants.

While Alkaterge-C is less than 0.002% soluble in water, a saturated aqueous solution has a surface tension of less than 35 dynes per centimeter as compared to 72 for water alone. The presence of 1% Alkaterge-C in oil reduces the interfacial surface tension against water to 1 or 2 dynes, although it has no effect on the surface tension of the oil.

It reacts readily with mineral and organic acids to form salts and soaps, some of which are water soluble and are excellent wetting and penetrating agents. It shows no apparent thermal decomposition up to 430C at atmospheric pressure. It appears to have anti-oxidant properties and has been used to increase the effectiveness of rust-inhibiting preparations.

Alkaterge-C is useful as a dispersing agent, a spreading agent, and a flotation agent for some nonmetallics.

Alkaterge-C is available in drum quantities. Write our Technical Service Division for further data and suggestions regarding the use of Alkaterge-C in your products or processes.

When inquiring specify CP A4925 . . . see information request blank, pgs. 2-3



WHEN AN ADHESIVE MUST RESIST DEW!

Do you need a moisture resistant adhesive . . . to protect quick-freeze packages against dew-formation . . . to protect bathroom packages against shower condensate . . . to protect potato bags against excessive freight car humidity?

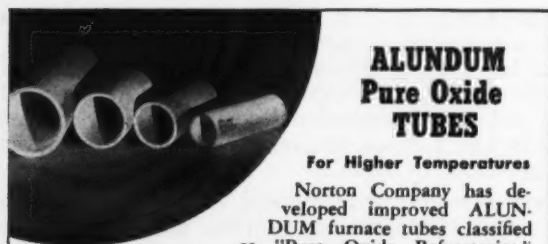
Or, do you need a moisture resistant adhesive film . . . that supplies breather action to permit asphalt to be packaged while steaming hot . . . that supplies a moisture vapor barrier to keep food fresh . . . that supplies water barrier action to prevent rain from rippling cardboard advertising displays?

Rely on National . . . with its wide knowledge of unusual adhesive uses . . . to provide protection against any form of moisture. Inquire—NOW! 270 Madison Avenue, New York 16, and other principal cities.

National
ADHESIVES

EVERY TYPE OF ADHESIVE FOR EVERY INDUSTRIAL USE

When inquiring specify CP A4926—see handy form pages 2-3



ALUNDUM Pure Oxide TUBES

For Higher Temperatures

Norton Company has developed improved ALUNDUM furnace tubes classified as "Pure Oxide Refractories."

These tubes which are essentially sintered alumina, without bond, greatly extend the utility of the ALUNDUM furnace tube line which in standard mixtures has met industry's needs for many years. The new mixtures provide even greater refractoriness and longer life.

Write for Bulletin No. R-25-E

NORTON COMPANY — Worcester 6, Mass.

ALUNDUM — Trade-mark Reg. U. S. Pat. Off.



NORTON REFRACTORIES

When inquiring specify CP A4927—see handy form pages 2-3

Materials

Making Laminated Papers with Microcrystalline Waxes

Other applications in cosmetic, leather tanning, electrical fields; replace natural waxes

Uses — Fabric treating, waterproofing, multiwall bags, tank linings, leather dressings, protective coatings, food wraps; in wet waxed papers and laminated papers.

Features — High melting point, high moisture vapor resistance, odorless, tasteless, chemically inert, desirable electrical characteristics and heat sealing properties. 170/175 grade is quite plastic and ductile over a wide range of temperature, while the 190/195 grade is hard and tacky. These waxes are composed of minute crystals very much smaller than those of paraffin wax.

Description — Bareco waxes are complex hydrocarbons, microcrystalline in structure, separated from selected fractions of petroleum. Investigation has shown, from their determined molecular weight, that their approximate composition may be expressed by the formula $C_{48}H_{98}$ — hydrocarbons of the saturated aliphatic series. They are 100% pure petroleum products containing no adulterants or additions of any kind. They are produced in a variety of colors, melting points and degrees of hardness. Two melting point grades: — 170/175° F. and 190/195° F. Either grade is available in three colors — black, amber and white.

Among the fast-growing uses of microcrystalline waxes

SIFTING SPEED AMAZES USERS

**CENTRIFUGAL METHOD
PRODUCES CLEAN SEPARATION 2 TO 5 TIMES
FASTER THAN BY ANY
OTHER METHOD.**

Typical of the reports of hundreds of users of Abbé-Blutergess Turbine Sifters are these: "We sift talc, zinc stearate, rice, starch, magnesium carbonate, getting 99.8% fines. It works 3 to 5 times as fast as gyrating sifter; labor cut in half."

On pharmaceuticals: "We save $\frac{1}{2}$ to $\frac{2}{3}$ ¢ per lb. and sift 3 to 4 times faster than with other mechanical sifters we replaced."

On molding compound: "Your machine is much smaller, easier to handle, clean and change screens than gyratory machine of equal capacity."

There are many more reports proving the remarkable savings in time, power, space, attention and cleaning. This Sifter handles any dry material, making clean, dustproof separation with minimum of "tailings." It is available in single, double and triple turbine sizes for any capacity from a few pounds to as much as 10,000 lbs. per hour. Overall floor space for the largest size is only 6.5 sq. ft.

Write for Bulletin 52

ABBÉ ENGINEERING CO.

46 Church St., New York 7, N.Y.



**ABBÉ
BLUTERGESS
TURBINE
SIFTER**

30 to 10,000 lbs./hr.
Sifts 6 to 300 mesh.
Clean Separation.
Less Space and
Power. Easy to
Clean.

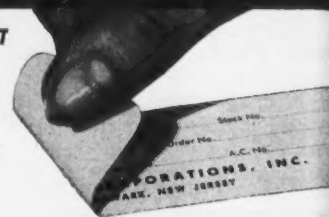
When inquiring specify CP A4928—see handy form pages 2-3

Peelable PRODUCTION STICKERS

APPLIED WITHOUT
MOISTENING

ADHERE TO
ANY SMOOTH
SURFACE

EASILY PEEL
OFF



Here's an entirely new type sticker that makes obsolete past methods of marking parts in production—takes the place of string tags, chalk marks, water-gum stickers.

These new Kum-Kleen stickers are far easier and faster to use—are applied without moistening, stick permanently with a finger-tip pressure to any smooth surface—metal, glass, plastic, wood, paper—won't fall off and can't get lost. When the job is done they peel off like magic—in one piece, never harm the surface. Available in various sizes, printed or plain.

Write for samples and booklet which explains hundreds of ways in which Kum-Kleen stickers have increased production and efficiency. Dept. CP-7.

Kum-Kleen

AVERY ADHESIVES

451 E. Third St., Los Angeles 13, Calif.

New York, Boston, Detroit, Pittsburgh, Chicago, San Francisco, Atlanta, Kansas City, Mo.
In Canada, Enterprise Sales, Toronto.

When inquiring specify CP A4929—see handy form pages 2-3



SULPHO HAND CLEANER Will Not Defat the Skin

Due to the nature of Sulpho, it has an almost neutral pH. Its cost compares favorably with products of lesser efficiency.

Write for Literature

WEST Company

42 1/2 WEST ST. LONG ISLAND CITY, N. Y. - DEPT.



When inquiring specify CP A4930—see handy form pages 2-3

Materials

is in the manufacture of wet-waxed paper. The process consists of adding small percentages of the brittle, high-melting point types to paraffin, which raises substantially the melting point of the film formed, increases its hardness and durability and improves its heat sealing properties. The ability of microcrystalline wax to raise the melting point of paraffin wax is of great value in this application. In the blending of almost any quantity of 190/195 melting point microcrystalline wax with 133/5 AMP paraffin wax, the effects on melting and penetration are to be noted. As little as 5% of the microcrystalline wax raises the melting point of the blend to 150° F.

By far, the largest use of microcrystalline wax in the paper industry is in the manufacture of laminated papers. The process of laminating, formerly known as pasting, consists of combining two or more plies of material to form a single sheet by applying an adhesive material between the plies and then subjecting the whole to pressure. Microcrystalline wax plays a dual role when employed in the manufacture of laminated papers. It not only acts as an adhesive with bonding strength but also serves as a reliable continuous impervious moisture-resisting film. Plastic types of microcrystalline waxes are the ones used for combining as they are inherently adhesive and have the necessary degree of pliability required to produce flexible laminated sheets. The choice of the correct microcrystalline wax is of great importance in the manufacture of laminated papers, especially where one or more of the plies consists of a hard surfaced sheet, such as glassine, cellophane, foil or other material which is not penetrated to any degree by the laminant. Usually employed is the plastic type of microcrystalline wax, having a penetration test of 25/35 at 77° F., as this grade seems to have the most satisfactory balance between cohesion and adhesion to produce the desired result. Literature on microcrystalline waxes and information on their application to meet specific requirements on request.

BARECO OIL CO. (Wax Div.), Dept. CP, Box 2009, Tulsa, Okla.

When inquiring specify CP A4931 — see handy form pages 2-3

★

Coating Protects Metal Parts, Wood, Glass and Porcelain

Adheres tenaciously but strips off in one continuous sheet; clear or in colors

Uses — Successfully applied to metal parts such as cutting tools, gears, taps, drills, etc., providing a moisture-proof protective coating.

Features — Adheres tenaciously but easily strips off at time when removal is desired. Dries in air and forms a clear, tough, elastic transparent film. No forced drying required.

Description — Applied at room temperature by spraying or dipping. In addition to metal parts, it may also be applied to sheet metal and to wood products, glass and porcelain. In actual life tests, this material, known as Plastipak shows no deterioration after exposures of long duration and it retains its transparency very well. High dielectric strength of Plastipak makes it a valuable material for radio and electrical fields as it provides moisture protection and insulating properties. Applied at room temperature, no special tanks or equipment are needed. Further information and specifications on request.

PURITAN CO., INC., Dept. CP, Rochester 6, N. Y.

When inquiring specify CP A4932 — see handy form pages 2-3

JULY-AUGUST, 1946

Where Freedom from Iron is a "Must" Use Hooker Sulfides

Eight parts per million (.000008 of a pound per pound of product) is as much iron as you will ever find in a pound of Hooker Sodium Sulfide. Manufacturing refinements and purification techniques developed by Hooker chemical engineers bring you this Sulfide that can be safely used in practically every case where an iron free sulfide is needed. And in Hooker Sodium Sulphydrate the iron content has been brought down to a maximum of 5 parts per million.

Where your processes require sulfides, you can be sure of purity of your products by using uniformly high purity Hooker Sodium Sulfide and Sodium Sulphydrate. A request on your company letterhead will bring Technical Data Sheets and samples.

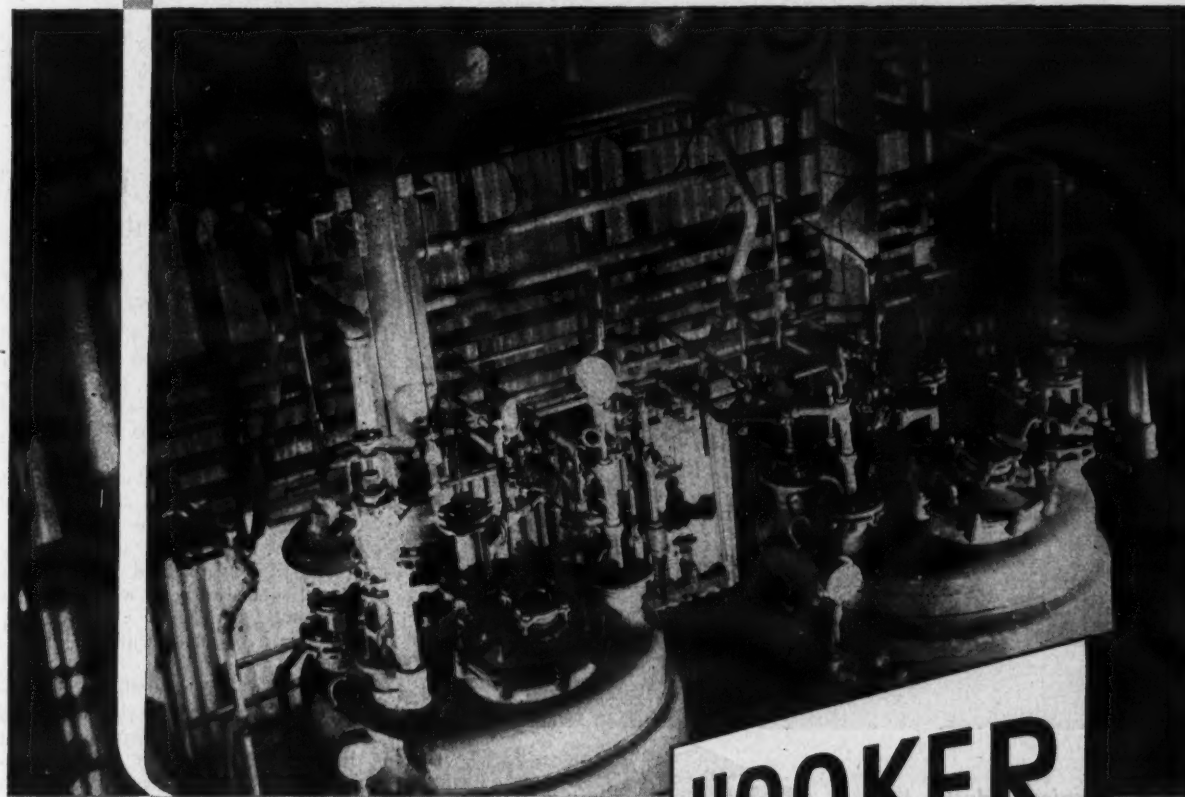
SODIUM SULFIDE, Na_2S , a light yellow colored solid in flake form, soluble in water, slightly soluble in alcohol, insoluble in ether.

Analysis	
Sodium Sulfide	90 to 98%
Sodium Chloride	1.5% Max.
Other Sodium Salts	2.0% Max.
Iron	8ppm Max.
All other metals	1ppm Max.
Water of Crystallization	36.5 to 34.5%
Shipping Containers, Drums 90 and 350 lbs. net.	

SODIUM SULFHYDRATE, NaSH , a light yellow colored solid in flake form. Soluble in water and alcohol, insoluble in ether.

Analysis	
Sodium Sulphydrate	70 to 73%
Sodium Hydroxide	6%
Sodium Sulfide	1 to 2%
Sodium Chloride	1% Max.
Other Sodium Salts	1% Max.
Iron	8ppm Max.
All other metals	1ppm Max.
Water of crystallization	28 to 26%
Shipping Containers, Drums 90 and 350 lbs. net.	

"Process equipment where iron-free Hooker Sulfides are being used."



HOOKEE ELECTROCHEMICAL COMPANY

15 Forty-seventh St., Niagara Falls, N. Y.

New York, N. Y. • Wilmington, Calif. • Tacoma, Wash.

Caustic Soda Muriatic Acid Sodium Sulfide
Paradichlorbenzene Chlorine Sodium Sulphydrate 2980

HOOKEE CHEMICALS

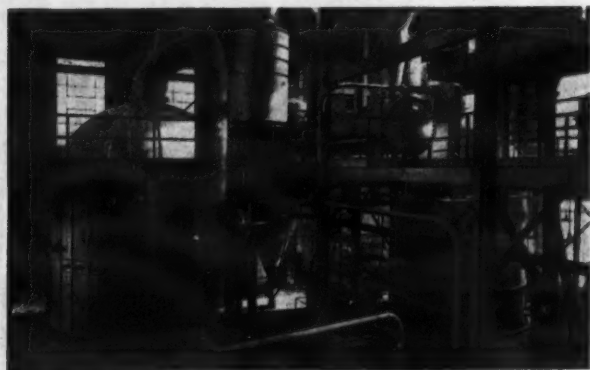
When inquiring specify CP A4933 . . . see information request blank, pgs. 2-3

When the Whistle Blows



Corrosion doesn't stop

Every chemical plant operator knows that. The walls, floors, and ceilings of the plant itself, as well as all the chemical processing equipment inside and out are constantly subjected to corrosive action. Naturally you are desirous of obtaining the very best corrosion and contamination protection available. Amercoat is a positive barrier to the corrosive action of salt water, hydrogen sulphide, caustic soda, sulphuric acid, crude and refined petroleum products, and other corrosive salts, alkalies and acids. You can apply Amercoat Plastic Coatings cold by brush or spray to metal, concrete or wood. Many chemical processors have used Amercoat successfully for years. Write for details and names of users.



In The Chemical Industry It's

Ask for
Booklet H.



AMERCOAT DIVISION:
AMERICAN PIPE & CONSTRUCTION CO.
P.O. Box 8428, Terminal Annex, Los Angeles 54, California

When inquiring specify CP A4934—see handy form pages 2-3

Materials

Sanitizing Agent May be Used at Either High or Low Temperatures

*One oz. in 4 gals. of water provides
effective disinfectant*

Uses—This sanitizing agent is suitable for use in process plants, in bottling plants and similar applications. It gives a detergent and sweetening action at high or low temperatures.

Features—Non-irritating to the hands. Efficient at freezing temperatures, its potency increases materially when the prepared solution is heated. One ounce of the chemical in 4 gallons of water provides an effective and stable disinfectant.

Description—The disinfectant is known as SP-25 and is tasteless and odorless, with a coefficient of 25. Its effectiveness in killing *Staphylococcus aureus* is indicative of its potency.

SETHNESS PRODUCTS CO., Dept.
CP, 1300 West Division St., Chicago, Ill.

When inquiring specify CP A4935
— see handy form pages 2-3

★

Aluminum Foil Laminant

*Used on roll applicators to adhere
foil to cellophane, bond, and kraft*

Uses—Developed for aluminum foil lamination. Recommended primarily for roll applicator machines, this adhesive will adhere all grades of aluminum foil to cellophane, acetate, glassine, bond, kraft, sulphite, chip-board and others.

Features—Produces flexible, transparent film which is odorless, non-toxic, and waterproof. Heat may be used in drying, using low heat first and gradually increasing it. With hard surfaced papers and non-absorbent webs such as acetate and cellophane, a satisfactory bond may be obtained with as little as 5 pounds per ream.

Description—This synthetic thermoplastic resin emulsion is a white liquid which weighs 9.07 lbs. per gallon. It is diluted with water, has a mild, transient odor and is not inflammable. Quality data: bonding strength—fiber failure 90-100%; flexibility excellent—30 to 300 C. Coverage 8-10 pounds per ream. Water resistance, — 240 hours cold — 2 hours boiling — fiber failure. Viscosity 400-500 cps. pH 4-4.5.

PAISLEY PRODUCTS, INC., Dept.
CP, 1770 Canalport Ave., Chicago 16, Ill.

When inquiring specify CP A4936
— see handy form pages 2-3

Methods by Mystik



Problem—Eliminate condensation on cold water pipes and dripping with resulting damage to machinery, storage, materials, etc.

Solution—Mystik Self-Stik DRI-PIPE stops pipe drip positively. A combination of thick insulation and waterproof tape, it applies easily, quickly to pipe without tools.

FREE—Sample of
Mystik DRI-PIPE and new
book, "Methods by Mystik"
on how Mystik products can
cut costs in your plant.
Mystik Adhesive Products,
2629 N. Kildare, Chicago 39

MYSTIK
Self-Stik

ADHESIVE PRODUCTS

"ANYTHING THAT STICKS"

When inquiring specify CP A4937—see handy form pages 2-3

NOW
CHLOROWAX
RESINOUS CHLORINATED PARAFFIN

*By the Drum
—Ton—
or Carload*

**READY FOR
IMMEDIATE
SHIPMENT**

SUGGESTED APPLICATIONS:
Interior and Exterior Paints • Varnishes and Lac-
quers • Textile Coatings • Wood Impregnation
Polishes • Floor Coverings • Glues and Adhesives
Paper Coatings and many other peacetime uses.

OUTSTANDING PROPERTIES
Chemically Inert • Highly Adhesive • Non Toxic
Water Repellent • Flame Resistant • Wide Com-
patibility • Improves moisture vapor resistance of
some resins.

Investigate the possibilities of Chlorowax for your
peacetime products.

Net Contents of Drum—250 lbs.

CHLOROWAX
DIAMOND ALKALI COMPANY
PITTSBURGH, PA.
and Everywhere

Write Today....
for your copy of this
brochure.

When inquiring specify CP A4938—see handy form pages 2-3

Mold Release Fluid & Compound

Silicone agents are semi-inorganic; incompatible with almost all inorganic plastics

Uses — These silicone mold release agents serve as lubricants which reduce the friction between the dies and plastic materials, improving plastic flow, reducing surface striation, and affording easy release from the mold or from rubber bags used in low pressure laminating.

Features — These silicones are semi-inorganic and incompatible with almost all kinds of inorganic plastics and rubbers. They wet and adhere preferentially to metal surfaces, and prevent the adherence of rubber and organic plastics to treated metal or rubber surfaces. Silicones are non-volatile and have negligible vapor pressure. The heat of molding operations does not vaporize silicone fluids or melt silicone compounds. Silicones are remarkably heat stable. They do not decompose at molding temperatures and consequently do not build up deposits on mold surfaces. They are both water-repellent and chemically resistant; thus they protect metal dies during molding operations or while standing. They are oxidation resistant and protect rubber bags from oxidative hardening at elevated temperatures and from the danger of tearing caused by adhesion of laminates. They confine the effectiveness of adhesives to desirable limits. They provide effective parting surfaces to such porous mold materials as rubber, paper, wood and plaster. Silicone compounds retain the consistency of petroleum jelly even at elevated temperatures and consequently are not absorbed by porous surfaces at casting temperature.

Description — In injection and compression molding — a cloth with a very small quantity of 100% silicone fluid may be used to wipe the die or mold. Only a very thin film over the metal surface should be applied to secure effective release. For more complicated molds and dies a brush may be preferable. A sufficient quantity of the fluid will be transferred to the brush by allowing the bristles to lie on a piece of felt saturated with DC mold release. An excessive amount of the silicone fluid will cause poor welding of the plastic. To minimize this danger, a dilute solution of the fluid in an organic solvent may be freely brushed over the surface of hot molds. An emulsion has been used with excellent results in the molding of natural and synthetic rubber. For molds and dies having deep cavities and undercut surfaces, a paint gun adjusted to expel an almost invisible mist of DC mold release fluid can be used.

In pressure laminating and casting when dealing with porous materials such as low pressure laminating bags, rubber molds, or surfaces of paper, wood, or plaster, DC 7 compound should be used. This is applied manually by rubbing into the surface. It eliminates the need for cellophane parting strips in low pressure lamination.

The number of moldings which can be made before it becomes necessary to retreat the die depends upon the speed of the cycle, the nature of the plastic material used, and the contour of the die. On a fast cycle of 30-45 seconds, it may be necessary to retreat the die every 10 or 15 minutes. Threaded dies from which release is difficult, may require retreating after four or five injections. The same limitations apply to the compound, the frequency of applications varying with the conditions involved in the operation. A folder which discusses applications in detail and lists properties of both the fluid and the compound is available on request.

DOW CORNING CORP., Dept. CP, Midland, Mich.

When inquiring specify CP A4939 — see handy form pages 2-3

JULY-AUGUST, 1946

K E G S

PFIZER CITRIC ACID

CARLOADS

IMMEDIATE DELIVERY

CHAS. PFIZER & CO., INC., 81 Maiden Lane, New York 7, N. Y. ★ 444 West Grand Avenue, Chicago 10, Ill.
605 Third St., San Francisco 7, Calif.



**PERISHABLE
TAKE CARE!**

**WARD OFF HAND HAZARDS
with Surety SURESEAL SYNTHETIC
RUBBER GLOVES**

Nature's defenses weren't intended to withstand acids, oils, solvents used in modern industry. Skin protection ... complete, comfortable, and worker-acceptable ... is assured by hard-to- snag, abrasion-resistant Surety Turn-Cuffs. They're made of better synthetic rubber with 14 times service life of natural rubber, other synthetics. Patented design for maximum safety when working in liquids. Turn-Cuff up stops fluids running down arms. Cuff down adds two inches welcome safeguard. ... Get Surety for SAFETY!



Send for your Surety Glove Selector
—takes the guess work out of glove
buying. Do it now!



THE Surety RUBBER COMPANY

CARROLLTON - OHIO

When inquiring specify CP A4940 — see handy form pages 2-3

**COTTON DUCKS
AND
FILTER FABRICS**

BURCOTT MILLS
regularly supplies cotton ducks and filter fabrics for the following industries: Chemical, Oil & Wax, Dye-stuff, Cement, Cane & Beet Sugar, Food-Processing, Ceramic Processing, Paint, Mining, Quarry and Smelting. Just a few of the items for quick delivery from Chicago stock:

36" No. 6 Duck	36" No. 8 Duck
42" No. 6 Duck	60" No. 8 Duck
72" No. 6 Duck	120" No. 8 Duck
84" No. 6 Duck	26" No. 10 Duck
32" No. 10 Duck	
26" 19.00 oz. Chain Cloth	
26" 15.00 oz. Chain Cloth	
26" 17.50 oz. Chain Cloth	

One of America's Most Dependable Textile Sources For The Chemical Industry

BURCOTT MILLS

622 W. Fulton Street Chicago 6, Illinois

When inquiring specify CP A4941 — see handy form pages 2-3

Materials

Masking Lacquers; Rack Coatings

Lacquers for stop-off of hard chrome, copper, cadmium, etc.; two types of rack coatings

Uses — This line of masking lacquers and rack coatings meets a wide range of plating plant requirements. The lacquers are available for stop-off hard chrome, copper, cadmium, tin, zinc and silver. All these lacquers are quick drying. The rack coatings are available in two types. Number 210 for general purpose and the heavier Number 220 for applications requiring maximum resistance to abrasion and rough handling.

Features — In many cases only one coat of the masking lacquer is required. The rack coatings exhibit the essential adhesion and flexibility and their relatively low viscosity eliminates bridging, webbing and pockets on intricate fixtures.

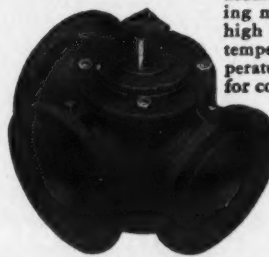
Description — The lacquers provide a durable, perfect protective coating of high dielectric strength and are quickly removed after plating. They can be applied by brush, dip or spray. They adhere firmly giving sharp definitions of stop-off line, they are trimmed easily by cutting and peeling. The four hard-chrome lacquers are offered in green, solid red, transparent red and bright yellow. The latter is particularly suitable for use in hard to see recesses. Copper and cadmium lacquer is offered in two types, one for low temperature solutions, the other for high. The lacquers will not contaminate solutions or tarnish the work.

The coatings include a general purpose solid covering white coating having very high solids content; thus only

Jacketed Pipe and Fittings



Jacketed 90° Elbow



Jacketed 3-way Plug Cock.
Note threaded plug adjustment, with lock nut.

**FOR MAINTAINING
UNIFORM TEMPERATURE (HOT
OR COLD) IN PROCESS PIPES**

Wherever processing operations require the maintenance of uniform temperature (hot or cold) in the process pipes, a Hetherington & Berner Jacketed Pipe System will meet every requirement of accurate, economical processing. Heating medium may be either hot oil for high temperatures, steam for medium temperatures, or hot water for low temperatures. Cold water for cooling.

At right: Jump-over pipes prevent heating (or cooling) medium from entering process pipe in transferring it from jacketed line to fittings, or from fitting to fitting.



Write for Bulletin S-44



HETHERINGTON & BERNER INC.

711 KENTUCKY AVE., • INDIANAPOLIS 7, INDIANA

When inquiring specify CP A4942 — see handy form pages 2-3

**PAYLOADERS
REPLACE
MISSING
MANPOWER**



Why worry about the men who are not to be had? In many process plants, the manpower problem for handling bulk materials has been eliminated with Hough Payloaders. These compact, readily-maneuverable units speedily pick up their loads, hoist them and carry them to nearby or distant points and dump them into trucks, bins or pits. The Model "HA" Payloader, pictured, will load, carry 100' and dump at the rate of 25 tons or more per hour. Note how easily this unit goes in and out of box cars where it is a great time saver. Hundreds of Payloaders are in Service with nearly every nationally known Fertilizer and Chemical Company. Ask for Bulletin 162.



THE FRANK G. HOUGH CO.
Libertyville, Illinois
"Since 1920"

HOUGH Payloader SHOVELS

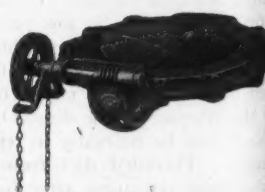
When inquiring specify CP A4943 — see handy form pages 2-3

ROCKWELL

Wafer

Butterfly Valves

*For "Tight Spots"
in Air, Gas or
Liquid Lines*



Where pipe lines leave little room for valve installation, use Rockwell Wafer Valves. Made of any metal, their thin body permits easy hook-up in any line, from 4" to 24" size, in vertical or horizontal position.

Wafer Valves give easy wedge tight closing, or valve may have a free revolving vane to turn 360°.

Available in lever, hand wheel or chain wheel control, or with any automatic control mechanism.

Write for Catalog and Price List.

ROCKWELL VALVES
— SLIDE AND BUTTERFLY TYPES —

W. S. ROCKWELL COMPANY
220 ELIOT STREET • FAIRFIELD, CONN.

When inquiring specify CP A4944 — see handy form pages 2-3

Materials

five coats are required and a solid-covering black coating. The white coating requires only a minimum drying time between coats — $1\frac{1}{2}$ hours at room temperature — enabling a plating rack to be completely processed in 6 hours. Overnight drying is sufficient after the final coat. Forced drying cuts the time still further. Contact points are readily trimmed after the last coat is applied. The black coating is similar to the white but somewhat heavier in body for maximum resistance to abrasion. It is applied by hand dipping. Literature and additional information on request.

PENINSULAR CHEMICAL PRODUCTS CO., Dept.
CP, 6796 East Nine Mile Road, Van Dyke, Mich.

When inquiring specify CP A4945 — see handy form pages 2-3

Compound Inhibits Mold Forming Organisms in Paper Mill Systems

Valuable as a preservative of wet pulp and paperboard; prolongs life of paper machine felts

Uses — The cost to paper makers of bacterial and fungus growths in pulp, paper and paperboard mills can be greatly lessened by the use of 2, 2' — dihydroxy — 5, 5' dichloro-diphenylmethane; more commonly known as G-4, and Preventol GD* (*product of General Dyestuff Corp.).

Description — For inhibiting the deposition and development of bacterial slime formations and mold growths as well as killing algae in paper mill water and stock systems, 2, 2' — dihydroxy — 5, 5' dichloro-diphenylmethane is dissolved as follows: 6 parts 2, 2' — dihydroxy — 5, 5' dichloro-diphenylmethane; 1 part caustic soda 76% flakes — mix together in 24 parts of water. The heat of solution of the caustic soda is sufficient to cause its reaction with 2, 2' dihydroxy — 5, 5' dichloro-diphenylmethane, forming the soluble sodium salt. This solution may then be diluted to a convenient concentration for application to the system in any proportion necessary for the control of the micro-organism encountered. Since slime growths prevent penetration of the chemical compound, they should be removed prior to the application.

An efficient method for cleaning paper mill chests and stock lines which may contain dead spots not easily reached in the ordinary clean-up is as follows: Dissolve 100 lbs. caustic soda flakes; 100 lbs. **Blancol Conc. Powder (** Product General Dyestuff Corp.) in a beater of hot water. Run this solution slowly through the entire stock preparation system and thence to the sewer. In integrated mills using slush pulp, it is best to introduce this solution as far back in the system as practicable. For immunizing woolen paper mill felts against attack by bacteria and mildew causing fungi, 2, 2' — dihydroxy — 5, 5' dichloro-diphenylmethane is dissolved as above using 3% 2, 2' — dihydroxy — 5, 5' dichloro-diphenylmethane on the weight of the felt. This solution is then diluted to a sufficient volume to wet out the felt and applied to the felt on the machine through a trough or by dipper or spray. After running long enough (generally about 15 minutes) to obtain a complete impregnation, a 1% solution of acetic acid is applied in the same manner to insolubilize the 2, 2' — dihydroxy — dichloro-diphenylmethane. After thorough distribution of the acid, the felt is ready to use. It is not necessary to dry the felt after these treatments. Additional information on request.

GIVAUDAN-DELAWANNA, INC., Dept. CP, 330
West 42nd St., New York 18, N. Y.

When inquiring specify CP A4946 — see handy form pages 2-3

JULY-AUGUST, 1946



**You can relax
if you have a DDT problem—**

WORK IT OUT WITH DU PONT

MANUFACTURERS working with formulas that employ DDT are invited to come to Du Pont for technical service! Experience gained by this major supplier of DDT to the armed forces may be of considerable value to you.

That experience plus Du Pont's continuing laboratory and field studies make it possible to supply you with Du Pont DDT Technical that measures up to rigid requirements.

Because of the method by which it is manufactured, Du Pont DDT Technical Grade is uni-

formly dependable. It works well in dry preparations, and dissolves quickly, forming clear solutions.

Our facilities are available to help you formulate DDT preparations that have a sound basis for commercial use. We shall be glad to supply working samples, literature or to have a representative call.

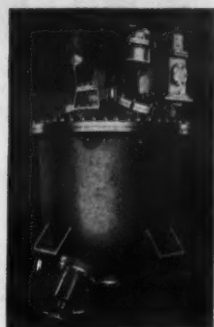
E. I. du Pont de Nemours & Co. (Inc.), Grasse Chemicals Department, Wilmington 98, Delaware.



BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

DU PONT
DDT Technical

When inquiring specify CP A4947 . . . see information request blank, pgs. 2-3



DOPP KETTLES

With the positive Agitator that cleans the heating surface as it mixes the material.

For mixing, cooling and processing
Chemicals and Food Products

BUFLOVAK EQUIPMENT

Division of Blaw-Knox Co.
1645 Fillmore Ave., Buffalo 11, N.Y.

When inquiring specify CP A4948 — see handy form pages 2-3

**A MOUTHFUL
at EVERY BITE**

● This is not only the claim of OWEN, the name symbolic of the highest grade Chemical Handling Buckets for 40 years — Operators everywhere, "on and off" the job, volunteer this testimony.

And — there's a reason. Owen-engineered buckets incorporate special features which have been continually improved.

THE OWEN BUCKET CO. Branches: NEW YORK • PHILADELPHIA
7500 BREAKWATER AVE. • CLEVELAND, OHIO CHICAGO • BERKELEY, CAL.

**and MORE BITES
PER DAY**

When inquiring specify CP A4949 — see handy form pages 2-3

Materials

Matrix Material Resists Grease, Oil; Yields Cleaner Molds

Permits reproduction of finest surface details; under special conditions has application in "lost wax" molding

Uses — As a highly serviceable matrix material that permits reproduction of the finest surface details in finished molds. Whether Plaster of Paris, Hydrocal, Keene's Cement or Portland Cement, or other types of synthetic stone are employed, this material may be used to secure cleaner castings. Book ends are a typical product made with these matrix materials.

Features — No painting or surface treatment is required. Clogging of detail commonly sustained when mold lubricants are required is eliminated. Finished casts shuck neatly from the mold because plaster does not stick to Korogel as it sometimes does to other materials. Flexibility of Korogel molds permits casting pieces with undercuts or back draft to close dimensions and without the use of piece molds. Rigid cases and dies heretofore needed to maintain dimensional stability are no longer required. If careful workmanship is exercised Korogel molds with dimensional tolerances of plus or minus 0.1% can be attained.

Description — Korogel is impervious to water, mildew, heat, or alkaline action of plaster or concrete, or the acid action of melted alum. Mineral oil and grease, commonly present in casting shops, has no effect on it. This matrix material is available in several grades from Number 3 (soft) to Number 6 (stiff and tough) and it may be

NOTHING PROTECTS LIKE STEEL

for Container Protection

in packing goods

for greater security in shipping

The Signode System of Steel Strapping Makes the Most of Steel's Protective Qualities

Signode Steel Strapping gives top protection because it does not fray, loosen or break. Of calculated strength, Signode Steel Strapping properly tensioned, absorbs the damaging shocks of handling and transit movements. Whatever your product — there is a Signode application that assures the greatest possible security.

Let a Signode engineer help you simplify your packaging and shipping. Write today.

SIGNODE STEEL STRAPPING CO.
2658 N. Western Ave., Chicago 47, Illinois
391 Furman Street, Brooklyn 2, N.Y.
477 Bryant Street, San Francisco 7, Calif.
Branches in 21 Principal Cities

SIGNODE
STEEL STRAPPING

When inquiring specify CP A4950 — see handy form pages 2-3

SEE WHY

BUMP PUMPS

**WILL DO YOUR
PUMPING JOB
BETTER**

Capacities 1/2 to 400 GPM

THE illustrated principle of operation shows why Bump Industrial Pumps have low maintenance cost. There is no grease cups, and no internal thrust — only 2 moving parts, which make them easy to clean and easy to maintain. As one company that has used a large number of Bump Pumps for years states: "They do a better job at a lower total cost to us than any other pump now offered on the market." Bump Industrial Pumps are positive displacement at any speed or pressure... self-priming under high vacuums or against head pressures.

The BUMP PUMP CO.
LA CROSSE • WISCONSIN

When inquiring specify CP A4951 — see handy form pages 2-3

ALL-NEOPRENE Latex GLOVES

For Every Industrial Use

- ★ Impermeable to practically all acids and caustics
- ★ Highly resistant to oils and greases

4 POPULAR STYLES

★ No. 5760-5, 18" LONG
EXTRA LONG GAUNTLET
GAUGE .030 TO .040
SIZES 10, 11

★ No. 5737-2, 14" LONG
LONG GAUNTLET
GAUGE .030 TO .040
SIZES 9-10-11-11 1/2-12

★ No. 5705-5, 11" LONG
SHORT GAUNTLET
GAUGE .020 TO .025
SIZES 9-10-11

★ No. 5702-5, 10 1/2" LONG
LIGHT DUTY
GAUGE .010 TO .012
SIZES 7-8-9-10-11

REQUEST SAMPLES
AND PRICES

SEIBERLING LATEX PRODUCTS CO.
AKRON, OHIO

200 - 5th Ave. Bldg., New York Merchandise Mart, Chicago

When inquiring specify CP A4952 — see handy form pages 2-3

stiffened more to meet special applications. Under special conditions Korogel may be used for the casting of many waxes for use in metal casting operations of the "lost wax" type. They are also useful in forming low melting materials which will flow at or below 250 degrees F. such as Cerosafe and Cerrobend. Large cavity industrial molds were used during the war in manufacturing land mines. Korogel molds will usually yield thousands of casts and can be remelted when continued use becomes impractical. Made in substantially the same manner as glue molds, a few variations are required due to the higher melting and pouring temperatures involved. Additional information concerning Korogel on request.

B. F. GOODRICH CO., Dept. CP, Akron, Ohio.

When inquiring specify CP A4953 — see handy form pages 2-3

★

Cotton Yarn Tensile Strength Increased by 40 Per Cent

Result achieved by submicroscopic colloidal silica when applied to cotton sliver in concentrations of 1-3%

Uses — This special submicroscopic colloidal silica — "Syton" — increases the tensile strength of cotton yarns up to 40 per cent, while decreasing twist to the same extent.

Description — The improvement is effected through mill application of "Syton". This product was originally announced as a chemical to make sheer stockings run resistant and to take the shine off serge. Careful study has been made on the effect of high polymers on the spinning of cotton. When applied to cotton sliver in concentrations of one to three per cent, the interfiber friction is increased and it is possible to increase the tensile strength and decrease twist as stated. This company also reports that modified melamine resins have been developed which can be applied in extremely high concentrations to cotton, rayons, and wools to impart improved crush resistance and resilience without embrittlement. This opens up the possibility of crushproof cottons, extremely resilient and soft rayons and resilient, washable woollens and worsteds. With each fiber certain constructions and twists respond better to resin treatment, and it is an important problem to select the best-adapted fabrics.

MONSANTO CHEMICAL CO., Dept. CP, St. Louis 4, Missouri.

When inquiring specify CP A4954 — see handy form pages 2-3

★

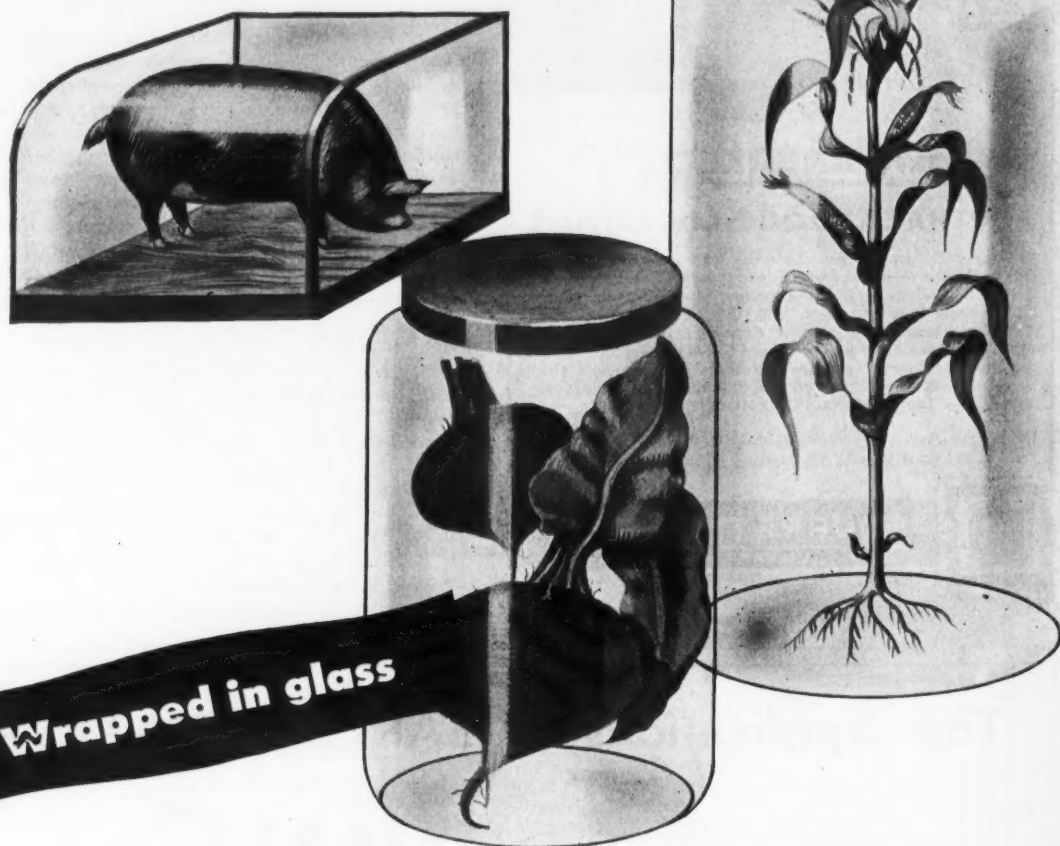
Rubber Tired Cast Magnesium Wheels

Strong, light, and noiseless cast magnesium wheels are described in a bulletin that outlines their features. Heavy-duty service at low cost per unit is featured together with reduced maintenance time and labor. Increased floor life, load capacity, handling efficiency, and safety along with light weight and greater shock resistance is pointed out. The wheels have been load tested in a certified laboratory and the maximum in wheel efficiency assured. It is stated that distributor franchises are available. The bulletin is available on request.

R & K INDUSTRIAL PRODUCTS CO., Dept. CP, 1945 North 7th Street, Richmond, California.

When inquiring specify CP A4955 — see handy form pages 2-3

JULY-AUGUST, 1946



You associate sanitation with a grocery, and that's largely because of glass. Think of a market without glass showcases . . . glass containers for food products . . . glass bottles for liquids!

Many surprising new uses for glass are being developed, too. It is being used for draperies . . . awnings . . . insulation . . . fixtures and appliances for the modern home.

Essential to the manufacture of glass is Soda

Ash. And a large part of the huge quantity of this valuable chemical used by the glass industry comes from Wyandotte Chemicals Corporation.

Wyandotte Soda Ash is also used in the making of pulp and paper . . . soap . . . non-ferrous metals . . . textiles . . . chemicals.

The result is a busy present—and the prospect of a busier future—in the production of Soda Ash at Wyandotte.



WYANDOTTE CHEMICALS CORPORATION • WYANDOTTE, MICHIGAN

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine Hydrogen • Sodium Zincates • Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

When inquiring specify CP A4956 . . . see information request blank, pgs. 2-3



Industrial Multi-breaker,
2 or 3 pole, 15 to 100
amp., common trip, quick
make and quick break.

MULTI-BREAKERS

FOR HAZARDOUS LOCATIONS

• Square D has broadened its line of cast explosion-proof Multi-breakers—in pace with current wartime requirements • In shell loading, powder, processing and synthetic rubber plants—wherever explosion and fire hazards exist, these Multi-breakers afford low-cost circuit breaker protection • All Class I, Group D enclosures are tested individually at 450 pounds hydrostatic pressure—an added assurance of their strength and stamina on the job. The line also includes enclosures for Class II, Group G locations.

Write for descriptive bulletin. Address Square D Company,
6060 Rivard St., Detroit 11, Michigan



SQUARE D COMPANY

DETROIT • MILWAUKEE • LOS ANGELES

When inquiring specify CP A4957—see handy form pages 2-3

Materials

Thermosetting Plastic Combines Shock Resistance, Color Range

Ivory and white are recent additions to color selections including black, blue, red and green

Uses — For forming washing machine agitators, vacuum cleaner housings, shock resistant food trays, baby food sterilizers and a variety of component parts or finished products for consumer service. Essentially a wartime development, the product was first introduced in black and mottled white to fill military needs. Among the first industrial uses of Melmac 3020 were heavy duty circuit breakers and other electrical parts requiring very high flexural strength, arc and flame resistance. In industrially important electrical applications, such as the insulating sections of electrical motors and insulating parts on heavy duty mining machinery control mechanisms. This plastic is also used on pumps for handling solvents, chemicals and foods, because of its low water absorption.

Features — Melmac 3020 makes it possible to produce a wide variety of parts in a range of standard light fast colors. This material is a shock resistant, melamine formaldehyde molding compound which is tough enough for heavy duty applications, yet still retains the color which has such great consumer appeal. In addition to brown, black, blue, green, red, two more colors are recently available. They are ivory and white. This addition of color to a thermoplastic provides a choice of color in the production of many parts and products.

Description — Melamine resin has the ability to combine



Aridifier uses centrifugal force that *flings out* and *disposes of* all air contamination.

"Men, you're looking at an Aridifier—at the only constant provider of dry clean compressed air—and the efficient remover of water, oil and dirt from air lines—the protector of our plant investment in all kinds of air operated tools—the safeguard of the sprayed finish and quality of our products—

"Our Aridifier saves us hundreds of dollars annually . . . Think how much they can save you in your plant!"

Made in 3/4" to 10" standard pipe sizes. Engineering consultation in all chief cities. Send for Bulletin 445.

LOGAN ENGINEERING CO.
4900 Lawrence Ave.
Chicago, Ill.

Logan ARIDIFIER
Dries and Cleans Compressed Air



When inquiring specify CP A4959—see handy form pages 2-3

The Applications of BARECO WAXES— ARE GROWING

War-born needs for protective packaging and processing provided a great impetus for Bareco scientists to find new applications for famous Bareco Microcrystalline Waxes.

Today, the applications for these fine waxes range from food packaging to batteries, transformers to polishes, and from rust preventives to rubber goods manufacture, just to mention a few.

Bareco Microcrystalline Waxes may have the answer for YOUR processing problems, too. Investigate their possibilities today, among these outstanding properties—

ODORLESS — **HIGH MOISTURE VAPOR RESISTANCE** — **TASTELESS**
EXCELLENT ELECTRICAL AND ADHESIVE PROPERTIES
CHEMICALLY INERT

Write for our illustrated bulletin.

BARECO OIL COMPANY

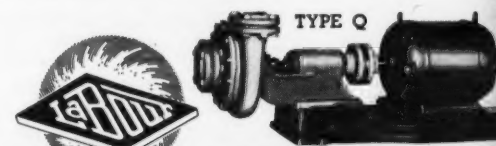
BOX 2009
TULSA, OKLAHOMA



WIDENER BLDG.
PHILADELPHIA 7, PA

Samples available
in black, white
and amber.

When inquiring specify CP A4958 . . . see information request blank, pgs. 2-3



CENTRIFUGAL PUMPS

SPECIALISTS in Pumping "Hard-to-Handle" Liquids

One indication of how thoroughly LaBour pumps are equipped to deal with chemical pumping problems is the wealth of performance data available to users and prospective buyers of LaBour pumps. "Case histories" covering almost every conceivable chemical pumping application have been compiled on LaBour pumps for over 20 years. This knowledge and experience is always ready to help reduce your costs, through increasing the efficiency of your operations.

Write today for details pertaining to your particular needs. No obligation.

THE LABOUR COMPANY, Inc.
1571 Sterling Ave., Elkhart, Ind., U.S.A.

TYPE DPL



When inquiring specify CP A4960—see handy form pages 2-3

readily with many types of filler materials, and a chopped-cotton-cloth-resin combination provides strength along with other desirable characteristic of this resin. At the end of the war it was possible to offer this material for domestic applications. Experimentation with different types of chopped-cotton-cloth fabrics, with bleaches and dyes, resulted in methods whereby standardized colors could be achieved. Melmac 3020 is adaptable to standard type compression-type machinery. Its lack of gasiness is among its desirable features. Speed of cure is comparable with alpha-cellulose filled ureas and melamines, satisfactory ejection of parts, and the fact that there is no



Molding non-breakable dishes from Melamine

tendency toward resin segregation in complicated moldings. It does not require critical technique, and supplies uniform moldings. Properties of Melmac plastic 3020: Specific gravity 1.5; Impact — Izod ft./lbs. .68; Flexural ASTM lbs./sq. in. 14,000; Tensile strength ASTM 7,000; Arc resistance 120 seconds; Dielectric strength ASTM 270 v/mil; Power Factor — 10^2 cycles ASTM 8.3%; Dielectric constant — 10^2 8.0; Heat Resistance 250° F. Literature and further information Melmac molding materials, laminating resins, Melmac resin adhesive, etc. on request.

AMERICAN CYANAMID COMPANY, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y.

When inquiring specify CP A4961 — see handy form pages 2-3

Bunsen-Kirchhoff Type Spectroscopes

Five models of this important type of spectroscope are outlined in a recent bulletin which gives specifications, description, and pictures of the subject. They are used principally for rapid visual determinations of the approximate composition of materials and for observing the spectral aspects of light emitted by sources or transmitted by filters. The following specifications apply to all models: Range, 400 to 800 millimicrons. Scale, 0 to 17 subdivided into tenths. Objectives, Archromatic. Eyepiece, 14 power Ramsden. Prism, 60° flint, 1.65 index. Spectroscope accessories such as spectrum tubes, mounted condensing lens, comparison prisms, and a delicate focusing adjustment conclude the booklet. Mention is also made of the availability of wavelength spectrometers for applications requiring greater dispersion, precision and broader spectral range. The bulletin will be sent to those interested.

THE GAERTNER SCIENTIFIC CORP., Dept. CP, 1201 Wrightwood Ave., Chicago 14, Ill.

When inquiring specify CP A4962 — see handy form pages 2-3

JULY-AUGUST, 1946

The FACTS Behind the Glycerine Shortage

AS everybody knows, the war and the widespread disruptions following it have caused a serious world-wide shortage of fats and oils, from which glycerine is derived.

This is the reason why enough glycerine cannot be produced at present to supply immediately all the heavy demands of the reconversion period.

Just as bread is short because of the world-wide shortage of wheat so, temporarily, the full demand for glycerine cannot be supplied because of the shortage of fats and oils.

As this situation gradually corrects itself, glycerine will be in good supply again and fully at your service.

GLYCERINE PRODUCERS' ASSOCIATION

295 Madison Ave., New York 17, N. Y.

Research Headquarters, Chicago, Ill.

When inquiring specify CP A4963 . . . see information request blank, pgs. 2-3

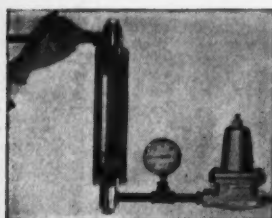
GET maximum absorption OF SULFUR DIOXIDE IN WATER WITH **ANSUL SO₂**

*4 to 5 times Greater Absorption
than from burner gas!*

EQUILIBRIUM SOLUBILITY OF SO₂ IN WATER AT ONE ATMOSPHERE (Saturated Solution)

Temp. F.	From Ansul Liquid SO ₂	From Burner Gas Containing:		
		20% SO ₂	18% SO ₂	16% SO ₂
32	18.59%	4.61%	4.15%	3.68%
50.6	13.95%	3.25%	2.93%	2.60%
68	10.14%	2.27%	2.02%	1.82%
77	8.60%	1.89%	1.70%	1.51%
86	7.30%	1.58%	1.42%	1.26%

It's So Easy to Install This Ansul SO₂ System and Get These Proved Advantages:



*This follows the principle described in Henry's law that the concentration of a dissolved gas in solution is in direct proportion to the concentration in the free space above the liquid.

WRITE THE ANSUL TECHNICAL STAFF FOR FURTHER INFORMATION



PHYSICAL PROPERTIES

Chemical formula.....SO₂
Molecular weight.....64.06
Color (gas and liquid).....Colorless
Odor.....Characteristic, pungent
Melting point.....-103.9° F. (-75.5° C.)
Boiling point.....14.0° F. (-10.2° C.)
Density of liquid at 80° F.....(85.03 lbs. per cu. ft.)
Specific gravity at 80° F.....1.363
Density of gas at 0° C. and
760 mm.....2.9267 grams per liter
(0.1827 lb. per cu. ft.)
Critical temperature.....314.82° F. (157.12° C.)
Critical pressure.....1141.5 lbs. per sq. in. abs.
Solubility.....Soluble in water
Purity.....99.9+% (by wt.) SO₂
(H₂O less than 0.01%)

*REG. U. S. PAT. OFF.

Also Manufacturers of Methyl Chloride

ANSUL CHEMICAL COMPANY
INDUSTRIAL CHEMICALS DIVISION, MARINETTE, WIS.
Eastern Office: 60 E. 42nd St., New York City

When inquiring specify CP A4964 — see handy form pages 2-3

Materials

Non-Slip Safety Abrasive

For use on metal wood and concrete

Uses — As a non-slip flooring and protective covering for metal, wood and concrete, or any surface where safety underfoot is a prime need.

Features — The special abrasive aggregate will withstand crush loads in excess of 7,000 pounds per square inch. More than two million strokes by power driven stiff fibre brushes had no effect on the material when it was applied to a steel plate and submerged under a strong soap solution.

Description — This material is a combination abrasive aggregate and plastic binder. It is available in a choice of six colors and may be applied by trowel, spray-gun, or brush.

GOODYEAR TIRE & RUBBER CO.,
(Chemical Products Div.), Dept. CP,
Akron, Ohio.

When inquiring specify CP A4965
— see handy form pages 2-3

Cleaning Compounds And Safety Solvents

Compound designed primarily for
aluminum; solvent for bearings

Uses — This emulsifying degreasing compound brightens as it cleans. Prepared ready for use, it contains no free alkalis. Although it may be used on ferrous metals and many plastics, it is blended especially for the degreasing and brightening of white metal alloys.

Description — Parts and surfaces may be dipped in or sprayed with this product, named G-Bex C, then thoroughly rinsed with water. Instant emulsification results. The action of this compound is to dissolve grease and oil, loosen dirt and reduce oxide stains.

Uses — This safety solvent is the first of a series, all of which are water white and characterized by high flash point and freedom from elements of toxicity and corrosion. This initial solvent "G-Sol 95" has been found useful for cleaning of precision bearings, instrument parts.

Description — Flash point, ASTM (Cleveland Open Cup) 195° Min; Fire Point ASTM (Cleveland Open Cup) 200° Min; Color — Water White. Specific gravity — 0.801 to 0.803 at 20° C. Viscosity Saybolt Universal at 100° F. 35 seconds. Residue less than 0.1% on distillation. Corrosiveness — standard Doctor test negative. "G-Sol 95" is available in 5 gallon drums.

GAYBEX CORP., Dept. CP, P.O. Box 3
— C, Nutley, 10, N. J.

When inquiring specify CP A4966
— see handy form pages 2-3

A lot more than Hand Safety

STANZOILS

with new non-slip
finish for faster
easier work!

Get more than safety for valuable working hands when you buy gloves for use in oils, acids and other harmful materials. Neoprene Stanzoils now offer you a revolutionary new non-slip finish that holds wet slippery objects as firmly as dry, giving wearers assurance and speed, making work easier, safer. Besides, Stanzoils cost less per hour of use, last 3 to 7 times longer. Write for the full story of more-for-your money Stanzoils — it pays to do it now.



Synthetic Rubber Division

THE PIONEER RUBBER COMPANY

239 Tiffin Rd., Willard, Ohio, U.S.A.

New York Los Angeles

OVER 25 YEARS OF QUALITY GLOVE MAKING

When inquiring specify CP A4967 — see handy form pages 2-3

WHAT A MIXER this is!

GROEN
MIXER TYPE
KETTLE



Count on this thoroughly dependable kettle to produce the most efficient cooking and mixing you demand. Built by GROEN, world's largest producers of Stainless Steel Steam Jacketed Kettles, it is expertly designed, engineered and tested for consistent performance.

Works fast. Easy to handle. Unexcelled where precise and reliable processing is vital. Get details on this and other famous GROEN Kettles.

Hundreds of leading Chemical Plants, etc. use and endorse this great kettle.

GROEN MFG. CO.

4535 W. Armitage Ave., Chicago 39

When inquiring specify CP A4968 — see handy form pages 2-3

Cold Applied Coating Does Not Sag at Temperatures to 600° F.

For concrete, masonry, metal; contains no volatile solvents; effective as vapor seal

Uses — For the protection of concrete, masonry and metal structures from corrosion and deterioration. In addition to being specifically compounded to protect concrete, masonry, etc., it is also effective as a vapor seal over various types of standard insulating materials. Having a high degree of plasticity and strong bonding ability, it is applied directly to the insulating material, or used to bond the insulation to the surface to be protected. It can be applied over old vapor seal coatings that have begun to disintegrate. It thus extensively prolongs the life of the underlying insulating material.

Features — The material contains no volatile solvents, eliminating discomfort to worker, minimizing danger of explosions, fire, when applications are made in an enclosed place. The material is odorless, tasteless and practically incombustible.

Description — This coating, known as "Bituplastic" is a black, irreversible dispersion. When it dries, it forms a tenacious, waterproof film, which does not revert to its original state. In all applications, adequate dry conditions are necessary, but drying time is short. The material can be applied to a very thick film in individual coats either by brushing or with standard spray equipment. The usual application is at the rate of 75-100 square feet per gallon per coat. Because of its rapid drying characteristics, two coats can be applied in a continuous operation where surfaces are fairly large and normal atmospheric drying conditions exist. Of interest is the stability of the coating under heat. It will not sag or flow at any temperature up to 600 degrees F., its disintegration point, nor does it alligator in direct sunlight.

WAILES-DOVE-HERMISTON CORP., Dept. CP, Westfield, N. J.

When inquiring specify CP A4969 — see handy form pages 2-3

Cation-Active Detergent Adds to Life of Papermakers' Felts

Has a pH closer to neutral than soda ash

Uses — Felt washing compound aids paper making operations by helping to prolong the life of papermakers' felts. **Features** — Substantial reductions in the cost per ton of "clothing" on paper making machines. The product is extremely mild and has no detrimental effect on felts, yet it keeps the felts clean and makes it possible to operate at greater efficiency.

Description — This compound known as Syntergent K is described as a light, amber colored liquid, having a pH which is much closer to neutral than the alkalies such as soda ash or trisodium phosphate. It can, however, be used with these alkalies and requires only a small amount of the compound when used with them. It can be used as well with acid as a detergent. Hard water does not affect the compound. Syntergent K is one of the few cation-active detergents available for felt washing.

NATIONAL OIL PRODUCTS CO., Dept. CP, Harrison, N. J.

When inquiring specify CP A4970 — see handy form pages 2-3

JULY-AUGUST, 1946

2 NEW, SAFE,* ECONOMICAL CATALYTIC AND POLYMERIZATION AGENTS

... decomposing at temperatures ranging from 70° C. to 250° C.

*These two interesting peroxides are not classified as explosive hazards by the Insurance Laboratories, Bureau of Explosives or I. C. C.

*t-BUTYL PERBENZOATE

DESCRIPTION AND AVAILABILITY

A liquid, organic peroxide (8.00-8.50% available oxygen) which in addition to being relatively non-volatile and highly stable, is easily miscible with many Monomeric Materials, effectively catalysing these materials to form extremely clear, bubble-free films. In limited commercial production. Samples will gladly be sent anyone interested.

PROPERTIES

Molecular Weight	194
Available Oxygen	8.00-8.50%
Color	Light Yellow
Specific Gravity @ 20° C.	0.859
Refractive Index @ 25° C.	1.489
Vapor Pressure	Less than 10 mm. of mercury at 100° C.
Freezing Point	-2° to -4° C.
Decomposition Point	113°-116° C.
Sensitivity	Insensitive to shock, rubbing, grinding. Highly stable at room temperature.
Stability	Stable over iron, aluminum, copper, tin, zinc. Decomposes slowly over lead.
Solubility	Soluble in all proportions in all common organic solvents.

SUGGESTED USES

1. As an effective catalyst in bulk polymerizations.
2. As a good high temperature polymerization catalyst.
3. Wherever organic peroxides are of interest.

Address all inquiries to the Union Bay State Chemical Company, Peroxides Division, 50 Harvard Street, Cambridge 42, Massachusetts.

Serving Industry with Creative Chemistry

ORGANIC CHEMICALS • SYNTHETIC LATEX • SYNTHETIC RUBBER
PLASTICS • INDUSTRIAL ADHESIVES • DISPERSIONS
COATING COMPOUNDS • IMPREGNATING MATERIALS • COMBINING CEMENTS

*t-BUTYL HYDROPEROXIDE

DESCRIPTION AND AVAILABILITY

An organic, alkyl peroxide that is standardized at a concentration of 60% (10.66% available oxygen). Use of proper activators increases the rate of release of oxygen. In limited commercial production. Samples will be gladly sent anyone interested.

PROPERTIES

Molecular Weight	90
Available Oxygen	10.66%
Color	Water White
Specific Gravity @ 25° C.	0.859
Refractive Index @ 25° C.	1.396
Boiling Range	90° - 107° C.
Flash Point	18.3° C.
Freezing Point	-35° C. to -36° C.
Decomposition Temperature	76.6° C.
pH of 1 part 60% Conc. in 10 parts water	4
Solubility	60% Conc. in water 11% Water in 60% Conc. 5% In short chain aliphatics Excellent In aromatics Excellent

SUGGESTED USES


1. As a catalytic agent in single and two phase polymerization reactions, as for example: in the polymerization of vinyl polymers and co-polymers; in the polymerization of diene hydrocarbons used in synthetic elastomers.
2. As a source of oxygen in the drying of paints.
3. As an oxidizing agent for laboratory purposes.

*U. S. Patents 2176407, 2223807, 2298405

UBS

UNION BAY STATE
Chemical Company

When inquiring specify CP A4971 . . . see information request blank, pgs. 2-3



Let **LEE** build your
KETTLE and PROCESSING
Equipment

DESCRIPTIVE BULLETIN ON REQUEST

LEE 418
METAL PRODUCTS
COMPANY, INC.
ONE STREET - PHILADELPHIA, PA.

When inquiring specify CP A4972 — see handy form pages 2-3

AN
Outline
OF THE
COE DRAINATOR
—the **ADVANCED**
STEAM TRAP with
NO MOVING PARTS...

SPEEDED manufacturing schedules demand this better steam trap. Its higher efficiency eliminates common bottle-necks and steps up production to new high levels. Greater air eliminating capacity permits quicker starts of cold equipment. Capacity for handling a larger volume of condensate gives increased transfer of heat. Continuous discharge of both air and condensate maintains high efficiency. The complete absence of moving parts avoids inspection costs and annual repair bills. A glance at the gauge glass indicates that the Drainator is efficiently performing the functions for which it was purchased — a question that is not easily answered in relation to conventional steam traps.

Get
THE COMPLETE
Story
Write to
The COE MFG. Co.
503 Bank St. - Painesville, Ohio

When inquiring specify CP A4973 — see handy form pages 2-3

Materials

Quick Setting Odorless Inks

Do not oxidize or require evaporation of solvents

Uses — Because of their odorless, moisture-setting characteristics these inks are of particular service in the production of printed food packaging and wrapping material.

Features — This type of ink, known as "Hydry" is a fundamentally different ink than those heretofore offered. Possibilities of offset are reduced to a minimum.

Description — "Hydry" is unlike the four general types commonly known as penetrating, oxidizing, evaporating and cold setting. The inks consist of a pigment or pigments and a vehicle or varnish composed of newly developed special synthetic resin and an odorless organic solvent having a high boiling point.

The resin is soluble in the solvent and in a mixture of the solvent and a limited quantity of water. However, it is insoluble in a mixture of the solvent and a greater quantity of water. When a film of the varnish is formed from this resin and solvent is subjected to a quantity of water, a thin hard film is formed, overlaying the plastic adhesive underlying portion. The small amount of moisture present in the air is usually sufficient to harden the outer surface of a thin, freshly printed film of "Hydry" in ten to twenty minutes. However, when an excess of moisture is impinged on the outer film surface in the form of steam, it hardens immediately. This thin, hard, crust prevents offset as the printing progresses.

SUN-CHEMICAL CORP., Dept. CP, 100 6th Ave., New York 13, N. Y.

When inquiring specify CP A4974 — see handy form pages 2-3

*

Process Permits The Use of Crude Fats in Making High Grade Soaps

Sodium chlorite bleaching involves no chemical deterioration of fat; color, odor improved

Uses — This new process, which makes use of sodium chlorite, was developed as a result of the shortage of fats and oils and has been used successfully on a commercial scale for about a year.

Features — Heretofore, chemical methods have rarely been used for improving the color of fats, because of the fear that the soap-making qualities of the fat might be unfavorably affected. With sodium chlorite bleaching, however, there is no chemical deterioration of the fat and both color and odor are much improved. Also, the yield of tallow is considerably higher than when filtration and absorption methods of color removal are used.

Description — The process consists of the use of chlorite in conjunction with either sulphuric acid or chlorine and may be carried out directly in the kettles used for fat purification. A batch of tallow may be bleached in about one and one-half hours. Refined tallow by this process, is improved in color from 13-15 to 3-5 F.A.C., with no revision. (Improvement in color of tallow is measured, according to the colorimetric scale set up by the Fat Analysis Committee of the American Oil Chemists Society, by reduction in its F.A.C. number.) Brown greases and house grease are improved from about 41 to 13-15 F.A.C.

MATHIESON ALKALI WORKS (INC.), Dept. CP, 60 E. 42nd St., New York, N. Y.

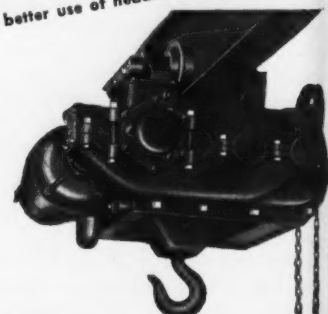
When inquiring specify CP A4975 — see handy form pages 2-3

Northern HI-LIFT ELECTRIC HOISTS 168-Hour Week Workers

They stay on the job because they have the strength and construction quality. One piece welded frames—turned and ground shafts—large size roller bearings—machine cut heat treated gearing—splash lubrication. All parts readily accessible for maintenance that usually isn't needed.

Hi-Lift feature makes better use of headroom—capacities 1000 lbs. to 15 tons.

Write for
Literature



NORTHERN ENGINEERING WORKS, 260' Atwater St., Detroit, Mich.

GRANES Northern HOISTS

When inquiring specify CP A4976 — see handy form pages 2-3

EXPERIENCE + SKILL + PRIDE OF PRODUCT
— PUMPS "by Aurora"
AURORA CENTRIFUGAL • APCO TURBINE-TYPE

The able performance of our pumps, with high efficiency and lasting dependability, fulfills the fundamental purpose of our business. Put a PUMP "by Aurora" on that next liquids handling job. You'll LIKE IT, TOO!

Aurora Deep Well Turbines for all conditions—4" to 24"

Type AD Hor. Split Case, Two Stage Centrifugal

NSA Aurora Centrifugal Sump Pump

Type OD Hor. Split-Case Double Suction Single Stage Centrifugal

Type G MC Close-Coupled Centrifugal

Apco Turbine-Type Pumps The simplest of all pumps. Ideal for small capacity, high head duties. Silent, compact and lasting.

Type GGU Side Suction Single Stage Centrifugal

APCO Horizontal Condensation Return Unit



APCO Single Stage Turbine-Type

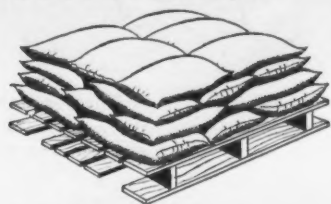
Write for CONDENSED CATALOG M or See Our Catalog in SWEETS.

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA
PUMP COMPANY
62 Loucks Street, AURORA, ILLINOIS

When inquiring specify CP A4977 — see handy form pages 2-3

THIS  OR THIS 



Generalift PALLETS

Bag after bag piled neatly, safely and moved in one load. True of bag packed goods and true of hundreds of other products. Savings in time and costs—simplified warehousing and inventory taking—these are yours with a fork lift truck and *Generalift Pallets*.

Today, piece by piece moving is past—with Generalift Pallets many items can be consolidated into single loads. Savings in materials handling mount as high as 90%. Generalift Pallets, Skids, and Lift Boxes are made to stand up under hard usage and give extra long service.

Be sure and get complete details—write for free Generalift Pallet Booklet.

ECONOMIZE . . . PALLETIZE . . . GENERALIZE!

GENERAL BOX COMPANY

GENERAL OFFICES: 522 N. Dearborn St., Chicago 10, Illinois

DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon, Continental Box Company, Inc.: Houston, Dallas.

When inquiring specify CP A4978—see handy form pages 2-3

Materials

Safe, Easily Handled Fungicides

Solvent; water soluble types

Uses — Used on paper, textiles, lumber, leather, rubberized fabrics, resin coated fabrics and shade cloth. Also cotton, linen, rayon yarn. Ropes are now being made from low grade fibers which, when thus rotproofed, out-perform, in certain applications, untreated higher quality ropes. In paints, varnishes, and lacquers, house paints and industrial finishes and other interior and exterior protective coatings.

Features — These fungicides, known as Nuocides can be processed, without heating, into ready-to-use preservatives, or added to chemical processes.

Description — The complete Nuocide line includes both solvent and water soluble types. It includes materials that are "microbiostatic" in that they arrest or inhibit microbial growth; and others which are "microbiocidal" in that they destroy microorganisms. Nuocides imbed in the fabric backing and finished coatings of oil cloth, artificial leather, rubberized part longer life and mildew resistance to fabrics, resin coated fabrics and shade cloth. In floor coverings, adhesives used in application of inlaid linoleum or felt based floor coverings can be made mildew resistant.

NUODEX PRODUCTS CO., INC.,
Dept. CP, 741 Magnolia Ave., Elizabeth, N. J.

When inquiring specify CP A4980
— see handy form pages 2-3

Palm Fatty Acid of Medium Titre

Synthetically made product is commercially available; drums and cans

Uses — This fatty acid product is of especial interest to textile specialty manufacturers, soap makers; also in connection with alkyl resins, polishes, wetting agents, cosmetics, rubber compounding, kier assistants, driers; in pulp and paper manufacture.

Description — This palm fatty acid of medium titre, is known as Palmalene. Specifications: Saponification number 180-186; iodine value 55-60 Titre 35. Available in 50, 200, 400 pound drums and 10 pound cans.

THE BEACON CO., Dept. CP, 97 Bickford St., Boston 30, Mass.

When inquiring specify CP A4981
— see handy form pages 2-3

Furfural—on the THRESHOLD OF CHEMICAL PROGRESS...



To the chemist of today Furfural and the other available Furans offer the same opportunity for chemical discovery as did benzene seventy years ago. For many years chemical industry has neglected Furfural and its derivatives, primarily because they frequently did not behave in the manner which would have been predicted from consideration of the ring substituent. Chemists are now beginning to realize that this unorthodox behavior might open up interesting and valuable developments.

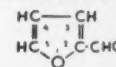
In the meantime the physical

properties of Furfural, such as its preferential solvent action on unsaturated compounds, its effectiveness as a dispersant, as a wetting agent and bactericide have so extended its use and reduced the cost of manufacture that Furfural is the cheapest pure aldehyde available today.

Because of its low price and because of its chemical activity which is a function of both the unsaturated ring and the aldehyde group, chemists will find it worth while to work with Furfural. Samples of Furfural will be gladly furnished when requested on your business letterhead.

PROPERTIES OF QUAKER FURFURAL

(Furfuraldehyde, $C_5H_4O_2$)
Amber-colored liquid of high stability and unusual purity



Molecular Weight	96.08
Freezing Point, °C	-37
Boiling Range (99%)°C	157 to 167
Specific Gravity (20/20°C)	1.161
Flash Point (open cup)°C	36
Refractive Index (20/D)	1.5261
Surface Tension at 20°C (dynes/cm)	49
Viscosity at 38°C (centipoises)	1.35
Solubility: Completely miscible with ethyl alcohol, ether, acetone, benzol, butyl acetate, china wood oil and most organic solvents except petroleum hydrocarbons and glycerol; 8.13% by wt. in water at 20 °C.	
Analyses	
Furfural, minimum %	*99.5
Water, maximum %	0.2
Organic Acidity, Maximum equiv/l	0.023
Ash, maximum %	0.006
Mineral Acidity	None
Sulfates	None
Ketones	None
*As determined by A.O.A.C. method.	
Standard Containers: 9, 45, 90, and 520 lb. Drums	
†Carload of Drums 80 to 88	41,600 to 45,760 lbs.
Tank Car 8,000 gal.	78,000 lbs.
Tank Car, 10,000 gal.	98,000 lbs.
†ODT requires maximum loading	
Drums non-returnable	

3 Bulletins

in a series on the Furans are also available to those interested. They contain interesting and informative data as indicated by the titles:



Bulletin 201
General Information About Furfural.

Bulletin 202
Introduction to the Chemistry of the Furans.

Bulletin 203
Physical Data on Furfural.

Bulletin 201 is of general interest to all users of chemicals. Bulletins 202 and 203 contain information of interest primarily to the research worker.

The Quaker Oats Company

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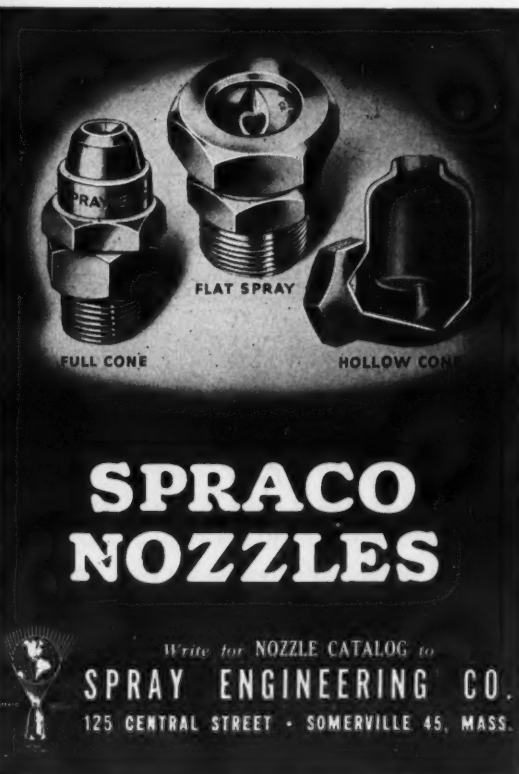
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FURFURAL • FURFURYL ALCOHOL • FURIOIC ACID • TETRAHYDROFURFURYL ALCOHOL

When inquiring specify CP A4982—see handy form pages 2-3

CHEMICALS DEPT.

SPRACO NOZZLES



Write for NOZZLE CATALOG to
SPRAY ENGINEERING CO.
125 CENTRAL STREET • SOMERVILLE 45, MASS.

When inquiring specify CP A4979—see handy form pages 2-3



Protect your investment in stainless steel equipment. Take advantage of the extra fabricating safeguards we have developed in our years of working exclusively with stainless steel. Our plant is specially tooled to fabricate this metal. Our engineers and mechanics know *all* the factors which effect the corrosion resistant qualities of stainless steel during fabrication. Our specialization and skill is your assurance of longer wearing equipment for your application. Why not consult with us when you order your next stainless steel processing vessel?

S. BLICKMAN, INC.
707 GREGORY AVENUE
WEEHAWKEN, NEW JERSEY

S. BLICKMAN, INC.
Guards Alloys in Fabrication

SEND FOR THIS VALUABLE BOOK

A request on your letter-head will bring you guide, "What to Look For When You Specify Stainless Steel for Your Processing Equipment."

TANKS • KETTLES • STILLS • HEAT EXCHANGERS • AGITATORS • MIXERS • TOWERS • PIPING

When inquiring specify CP A4983 — see handy form pages 2-3

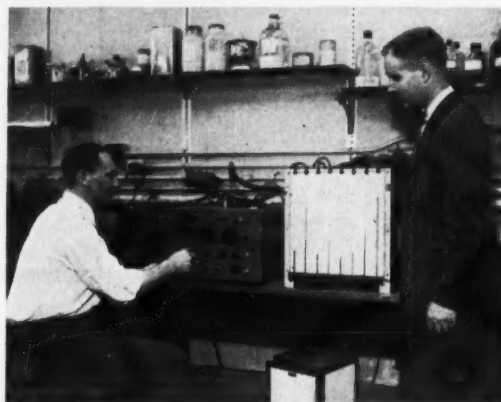
★ IDEAS ★

Industrial ingenuity constantly hatches new ideas, many of which can be applied to similar problems in other plants. The Editors have selected these ideas and developments because of their interest and possible application in specific plant problems. If you would like more information on any of these, write direct to the manufacturers.

Penetrometer Measures Small Quantities of Smoke

Detects 1/100,000th of an ounce of smoke in a room 30 feet square

This instrument, a development under a wartime contract with the National Defense Research Council, has possibilities for important uses in the industrial and research fields. Known as the "Northwestern Photoelectric Smoke



Penetrometer used to test canister of a gas mask. Rate of air flow indicated by manometers at right.

Penetrometer," it is so sensitive that it can detect 1/100,000th of an ounce of smoke in a room 30 feet square. Smoke detectors have been known and used industrially for a number of years but this device employing a new principle of signal detection is more sensitive. A "scattered light" principle is the basis of signal detection and stray light is cut down to a low level. The result is that sensitivity is increased at least 10 times more than other available units. A photo-cell, amplifier and null balance potentiometer are used in the instrument. The device gives instantaneous readings on the amount of dust in the air and is so sensitive that a puff of cigarette smoke in an auditorium will deflect its indicator. Its delicate electronic circuits must be hermetically sealed to insure accuracy. During the war the Penetrometer was used to test the effectiveness of gas mask filters for toxic smokes at Northwestern laboratory of the NDRC chemical warfare division. Suggested uses are: studies in industrial plants, smoke elimination, air purification and conditioning systems. It may also be used in studying the concentration of various colloidal systems in the field of pure chemical research. Another possible application is detecting catalyst losses in flue gas of a fluid catalytic cracking unit. (The instrument was developed at Northwestern University, Evanston, Illinois, by Dr. Hugh B. Pickard, Frank T. Gucker, Jr., professor of chemistry, and Chester T. O'Konski, electronics expert. Professor Gucker and Mr. O'Konski are shown in the accompanying illustration.)

Ball Bushing For Linear Motion

Permit size, weight and cost of mechanisms to be scaled down

The recently developed ball bushing for linear motions is comparable in importance to the introduction of the ball bearing for rotary motion. Anti-friction bearings are now available for both basic motions. Thomson Industries, Inc., announces the standardization and production of their round shaft type ball bushing. This brings to the designer a bearing for linear motions that possesses all the advantages and economies that ball bearings impart to rotary motions. Numerous new products may utilize this development to advantage.

In addition to the deduction of wear, friction and maintenance afforded by all types of anti-friction bearings, the availability of ball bushings offers the engineer a solution to two troublesome problems inherent to plain sliding linear bearings. The oil film, over the exposed surface of the shaft upon which the plain bearing's operation depends, deteriorates due to oxidation and becomes gummy and grit laden. Plain linear bearings require a large length to diameter ratio to prevent locking and binding. Free

MOVIE OF THE MONTH

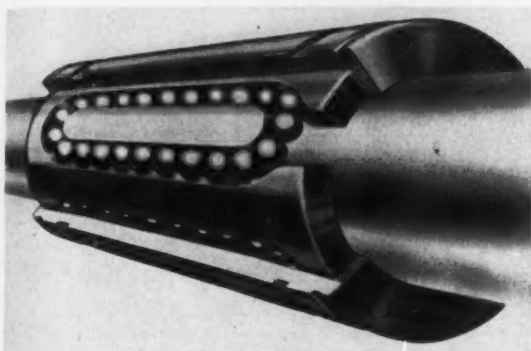


MILWAUKEE, WIS. — Allis-Chalmers' new 16 mm all-color sound film on induction heating — "Metal Magic" — is now ready for showing. See how rapidly, easily, safely industry's newest tool operates. Running time of this dramatic movie is 12 minutes. For details write . . .

ALLIS CHALMERS MILWAUKEE 1 WISCONSIN

When inquiring specify CP A4984 — see handy form pages 2-3

rolling ball bushings sharply reduce this dimension requirement and permit welcome design economies. The size, weight and cost of countless mechanisms can be scaled down by the ingenious application of these bushings. Standard ball bushing sizes vary from 1/4" shaft



Ball bushings in sizes 1/4"-4"

size to 4". Sizes from 1/4" to 1" vary in 1/8" steps; from 1" to 3" in 1/4" steps; from 3" to 4" in 1/2" steps. Production of some of the smaller sizes is now under way. Volume production of the remaining sizes will soon be under way. Standardization of ball bushings for square shafts is not yet complete but this type can be furnished and an experimental basis for proto-type equipment. (Thomson Industries, Long Island City, N. Y.)

New Structural Assemblies of Balsa Wood, Aluminum Plates

Use foreseen in many consumer products although designed for aircraft applications

A new featherweight material possessing tremendous strength beneath a mirror-like exterior has been given the appropriate name of "Metalite". Although designed to meet the requirements of future aircraft construction, its use in many other fields is foreseen. "Metalite" is basically a metal-faced sandwich material employing a light-weight core to separate and stabilize the metal faces. Modern industrial designers are constantly seeking to build products which are stronger, lighter and less complex. "Metalite" with its savings in weight might be used to advantage in manufacturing such products as washing machines. Being impervious to damage caused by moisture, it might afford greater protection to delicate mechanisms which a cabinet of this material housed. Its use in prefabricated houses is also a possibility.

Metalite consists of thin sheets of high strength aluminum alloy, separated by a thick, low density core of balsa wood and bonded firmly together to form a single light, rigid unit. The grain direction of the balsa wood core is set perpendicular to the metal faces. A core material of greater density than balsa can be used in spots where greater strength is desired. The core is relatively thick in comparison to the face plates. The material is formed by bonding the core and faces together under moderate heat and pressure, all the bonds being made in ordinarily in one operation. The bonding operation is done with the parts or assembly in a mold of the desired shape. (Chance Vought Aircraft Div. — United Aircraft Div. — United Aircraft Corp., Stratford, Conn.)

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OVER 100 ITEMS

OVER 7,000 SIZES

High priority government contracts have had first call on our production for a long time. Now, though, we're ready to help you — with a big stock of Stainless Steel Fastenings, ready to ship!

Machine screws, wood screws, nuts, bolts, rivets, cotter-pins, washers, nails, pipe and pipe fittings — standard and special items — our stock room is at your service, and it's both big and full! We have fastenings in 18% chrome, 8% nickel, of course, as well as other less common formulae and analyses.

If any part of your product, or your production line, is exposed to corrosion from any source, Stainless Steel Fastenings give you the protection you need; we have those Fastenings to meet any situation — any type of corrosion — oxidation, high temperature, acids, alkalies — fastenings to give you lasting service.



WRITE TODAY for our catalog and stocklist. Address Anti-Corrosive Metal Products Co., Inc., 52 River Road, Castleton-on-Hudson, N. Y.

Anti-Corrosive Metal Products Co. Inc.

CASTLETON-ON-HUDSON NEW YORK

When inquiring specify CP A4985 . . . see information request blank, pgs. 2-3



No Mask Needed!

Noxious fumes from this zinc dip are whisked away quickly and *completely* by the window-mounted Propellair fan. Attendants never need masks, and it takes a vigorous sniff close to the tank to detect any odor at all. Propellair double-action airfoil blades *really* move air.

"SUPERB SERVICE"

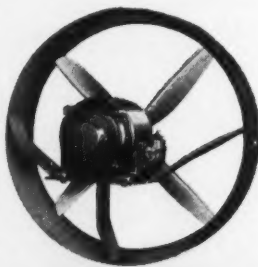
Nine years ago, Burndy Engineering Co., Inc., Bronx, N. Y., installed their first Propellair fan. Now they have 20. Says Mr. H. Scheinbeim, Burndy's Equipment Engineer, "All have given superb service 16 to 24 hours a day, six days a week, with not *one penny* spent on repairs."

BOTH BLADE SURFACES WORK

Propellair fans with their scientific *pull-push* blades, their uniform velocity over whole fan area, their compact *functional* design throughout, do a marvelous air-moving job. Write today for full information. Distributors in 25 principal cities to serve you.

For Every Industrial Ventilating Purpose

Illustrated: Type CD direct-connected fan for walls, windows, ducts, roofs. Sizes: 12 to 60 inches. Capacities to 88,000 c.f.m. Other types include shaft and belt drive models with motors outside air stream, and portable fans on cradle or pedestal mountings.

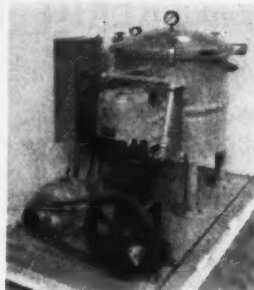


When inquiring specify CP A4986 — see handy form pages 2-3

Ideas

Unique Processing Machine Uses Centrifugal; Vacuum Principles

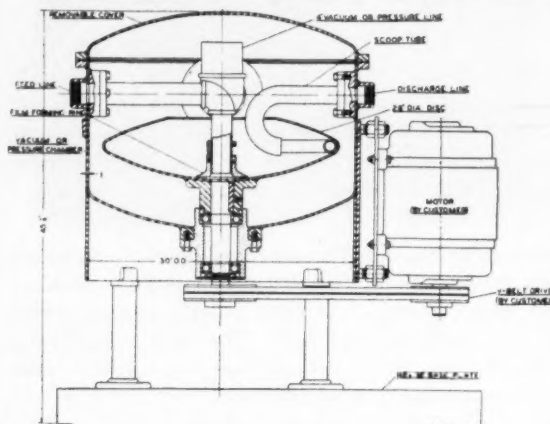
Reduces fluid to viscous materials to particle film without application of mechanical pressure or rise in temperature



Centrifugal machine produces highly turbulent film—virtually all surface

Efficient reduction centrifugally of flowable materials (from fluid to viscous) to a micro or mono particle film without the application of mechanical pressure and without any temperature rise has offered possibilities for new processing techniques and increase production. Applications in chemical, food, paint, paper, textile, metal alloys and cosmetic fields have awaited development of equipment to perform such operations.

An ingenious machine has been recently introduced under the name Versator which consists of a vacuum or pressure chamber in which a 26 inch diameter disc in the form of



Cross-sectional view of Versator

an open bowl operates at high speed. As the material being processed is fed onto the center of a spinning disc in the form an exceedingly thin film, centrifugal force makes it flow out radically in ever widening spirals which reach minimum thickness and maximum velocity at the perimeter of the disc. The slope and speed of the disc produce a highly turbulent state for the application of vacuum or pressure, heat or cold, diffusional processes or irradiation. The Versator can be used for homogenizing, emulsifying, reversing emulsions, dispersing solids in liquid vehicles, de-gassing or de-aerating solutions; for evaporating, dehydrating or distilling extremely heat sensitive materials without thermal decomposition; for impregnating, wetting or hydration of fibers or solid particles; for diffusional processes, for oxidations or continuous hydrogenations; for instantaneous, continuous reactions. It shows possibilities as a tool for users of ball mills, colloid mills, vacuum stills and similar processing equipment. Through-put capacities range from 10-100 gallons per minute. Power consumption is less than 7½ HP for viscosities not greater than those of heaviest lubricating oils and somewhat higher for really viscous materials. Disc

Six Ways to

INCREASE YOUR FLOOR SPACE WITH SKID PLATFORMS, SEMI-LIVE SKIDS & FLOOR TRUCKS

1. Tier loaded skids in out of way places.
2. Use semi-live skids to hasten car and truck loadings.
3. Install specially designed production-line skids to speed handling.
4. Use specially designed super structure units to handle two or three times as much.
5. Two or three conveniently "spotted" lift jacks will handle many semi-live skids—therefore save room.
6. Use removable-shelf floor trucks for parts usually piled on work tables.

The faster a job is finished the faster it will be out of the way — on its way to the consumer.

Write for illustrated literature on Ironbound: 1. Cost saving, 2. Labor saving, 3. Space saving materials handling equipment.

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Ironbound

**MATERIALS
HANDLING
DIVISION**

SKID PLATFORMS SEMI-LIVE SKIDS FLOOR TRUCKS



When inquiring specify CP A4987 — see handy form pages 2-3



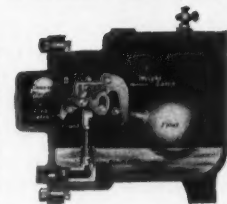
**Temperamental Traps
Trouble You?**

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NICHOLSON TRAPS

**Weight
Operated**

STEAM, AIR and GAS traps by Nicholson are being widely designated where dependable positive action with maximum discharge is essential. Some reasons why: they're not dependent on buoyancy or weight of float . . . leak-proofed by water-sealed discharge valve . . . unaffected by re-evaporation of condensate due to superheat . . . non-wire drawing . . . not easily affected by dirt, scale, vibration or variation in pressure. Models for pressures to 1500 lbs.



**Catalog 444
or See Sweet's**

W. H. NICHOLSON & CO. 181 OREGON ST.
WILKES-BARRE, PA.

When inquiring specify CP A4988 — see handy form pages 2-3

Change in processing may mean change in FILTER MEDIA

SHOULD IT BE...

As operating conditions change, the proper medium for economical filtration may change. Hot acid, cold caustic and varying percentages of solids all demand different FILTER MEDIA. If you are considering making any changes in your present processing, why not submit the new filtration problem to us?



Filter Media Corporation
SPECIALISTS IN FILTER CLOTH FOR INDUSTRIAL FILTRATION
HAMDEN 14, CONNECTICUT
CHICAGO • SALT LAKE CITY

When inquiring specify CP A4989 — see handy form pages 2-3

Ideas

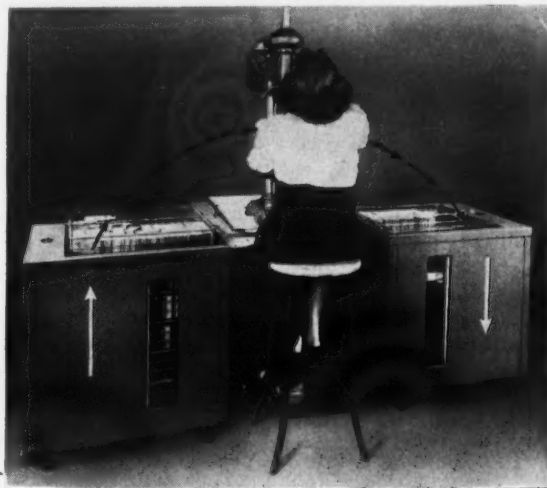
speed may be as low as 900 rpm but the optimum speed for most operations is about 1800 rpm. The Versator is available in steel, stainless steel, nickel, Monel Metal, Everdur, etc. Complete information as to rental, etc. and its application to specific materials is available on request.

(The Cornell Machine Co., 101 Park Ave., New York 17, N. Y.).

Constant Level Material Racks Operated By Adjustable Springs

Speed assembly, processing; simplify storage and processing operations

Automatic, spring powered racks speed progressive assembly or process operations by keeping materials ever at operator's hand level. They also eliminate manual lifting



Unfinished work in left rack; completed parts in right

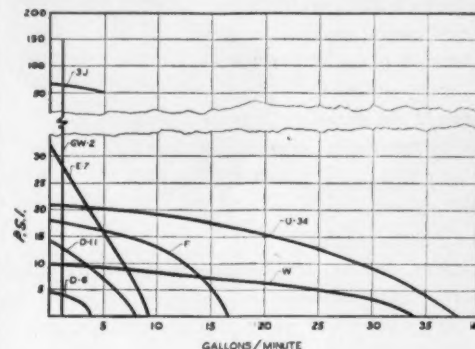
of loaded tote boxes in transporting materials to point of work. The convenience of these compact, streamlined racks in their sturdy enclosures is illustrated in the accompanying photo. Without any bending or lifting, the operator in this picture effortlessly takes material to be processed from tray in the automatic material rack at her left, and just as easily, places processed material in the rack at her right. A calibrated spring mechanism maintains the racks constantly at convenient working level. Trays in the rack at left rise as they are emptied. Finished parts are placed in trays on the rack at the right and these trays are lowered automatically as the load increases. In many cases, it is desirable to place the material and finished parts directly on the rack platforms.

The racks are designed to handle any load. Adjustment to accommodate varying total weights are made by unhooking one end of the springs which are accessible through a convenient door. Ball bearing casters provide easy movement to point of work.

Racks are now in service in numerous plants. In addition to handling metal, plastic and other parts they are used in such operations as handling soap and testing battery cells. In the former instance the racks are used to receive soap as it leaves the press. In the latter instance the racks make possible a continuous flow of cells into the testing machine. (American Machine & Foundry Co. — Lowrator Div. — 511, 5th Ave., New York 17, N. Y.)

EASTERN PUMPS

COVER A WIDE RANGE OF PERFORMANCE



The performance chart shown above typifies the wide range of performance available through the selection of Eastern Midget Pumps. These pumps can provide the right equipment for your needs where small size and light weight combined with high performance and economy of operation are factors. They may be equipped with the easily adjustable stuffing boxes or rotary seals and will not leak at several times the maximum working pressures. Weights are from 2¾ to 100 lbs., capacity from ½ to 70 G.P.M. and pressures range up to 250 P.S.I. Standard models of many pumps are available in Monel Metal, Stainless Steel, Hastelloy "C", Cast Iron, Bronze and other metals and alloys. Models are motor driven, including Underwriters' approved explosion-proof motors, air driven or belt driven. Write for NEW CATALOG describing entire line of pumps.



**EASTERN
ENGINEERING CO.**
49 Fox St., New Haven 6, Conn.

When inquiring specify CP A4991 — see handy form pages 2-3

EDMONTS ALL OVER

LOOK FOR
THE FABRIC
LINING



All over the industrial field you'll find EDMONTs, the longer wearing, water-and-liquid-proof glove that's a true EDMONT all over—made, start to finish, in our own plant. Every seam, the special dip-coating, positive control curing—all the work of EDMONT specialists who have concentrated exclusively on this combination rubber and fabric glove for over 10 years.



**Fabric-Lined
RUBBER GLOVES**

Edmont
TRADE MARK REG. U.S. PAT. OFF.

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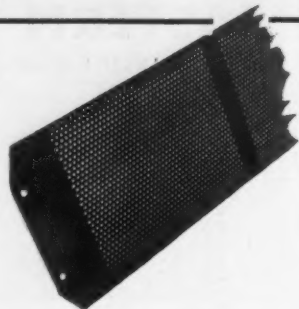
When inquiring specify CP A4990 — see handy form pages 2-3

**11/64" ROUND TAPERED PERFORATIONS
IN 11/64" STAINLESS STEEL PLATE**

For the chemical industry, Hendrick makes this special type of perforated plate of 11/64 inch stainless steel, with 11/64 round tapered perforations.

The perforations are reamed individually, and the inside of the perforations, and top and bottom of plates, are polished to insure perfect smoothness. Tolerances of ± 0.003 inches are maintained on perforation size, taper, and thickness of plate.

Write for data on any desired type of perforated or wedge slot screen.



Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring
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Amorgrids. Sales Offices in Principal Cities

HENDRICK
Manufacturing Company
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When inquiring specify CP A4992 — see handy form pages 2-3

Ideas

Ion Exchange System Processes 9000 Gallons of Water Per Day

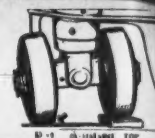
*Provides potable supply to mining village;
eliminates costly hauling by trucks*

The entire domestic water needs of a typical mining village are being supplied from local sources through the use of an ion-exchange system of water purification. This is believed to be the pioneer application of such a process to municipal water supply, and appears to indicate a way of improving water supply of regions isolated from potable water sources.

Previously, the town referred to, David, Ky., was dependent upon tank trucks brought over nearly ten miles of mountain road. The water was stored in a 60,000 gallon reserve tank in the village. All surface water in the region is hard and salty. Wells in the vicinity yield undrinkable, brackish water containing 2500 to 3000 parts per million of total solids. Water costs by the truck and tank method ran as high as \$1600 a month. Installation of the ion-exchange system was the result of a search for a cheaper and better supply of water. The new unit produces 9000 gallons of potable water in a nine hour operating day. About 85% reduction in solids is achieved. The final water averages about 440 ppm total solids, none of which is hardness. Operating costs average \$400 a month.

The "Filt-R-Stil" equipment consists essentially of four columns arranged in series and containing alternate beds of cationic and anionic exchange resins. Raw water is fed

This is What Happens
When a WELD-BILT Hydraulic
Lift Truck Strikes a BUMP
(Only ONE Wheel
Leaves the Floor)



While on MOST Lift Trucks
BOTH Front or Back Wheels Go
Up — Tilting Load, or Making
Steering Difficult

WELD-BILT TOGGLE ACTION FRONT AXLE PREVENTS THIS

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Without Strain on Front Steering Spindle . . . Avoiding
Damage from Jar or Vibration — Floor Wear and Tear —
Makes Trucking Easier, Faster.



"Weld-Bilt"

HEAVY DUTY
HYDRAULIC LIFT TRUCKS

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Equipment sent upon request.

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MATERIALS HANDLING ENGINEERS

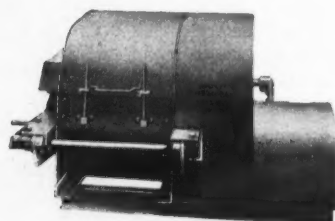
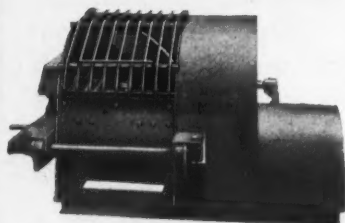
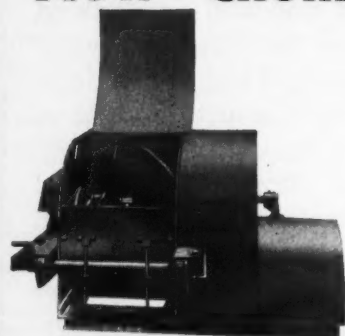
When inquiring specify CP A4994 — see handy form pages 2-3

New Chemical Mixers by Multiplex

To Help You Solve Your Mixing Problems

Fast, Efficient, Sturdy, Low Cost Mixers

We have built mixers for many chemical, rubber, ceramic and other process plants and may be able to help you in your quest for heavy duty, inexpensive mixers. The Multi-Mixer will give you a better mix in less time with all material in action at all times. They are dust-proof, well built and guaranteed to do the job.



3 to 60 Cubic Feet Capacity

Open or Closed Type Cover

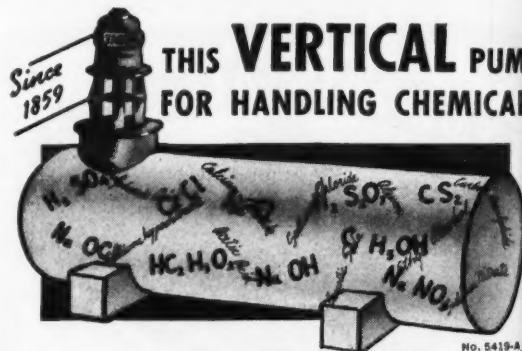
Discharge Arranged to Suit Conditions

Write for full information and new descriptive literature.

Multiplex Mixers — Elmore, Ohio

When inquiring specify CP A4993 . . . see information request blank, pgs. 2-3

THIS VERTICAL PUMP FOR HANDLING CHEMICALS



Oleum, Concentrated Sulphuric and Mixed Acids, are successfully handled in a practical manner by Taber VERTICAL Pumps, because:

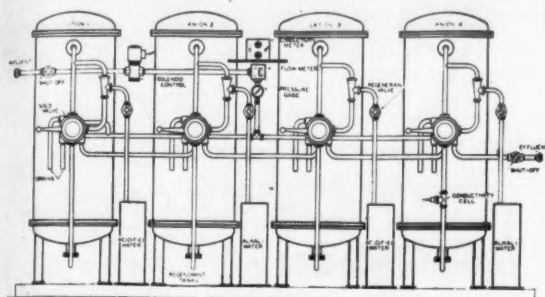
- ① Liquids handled do not come in contact with pump stuffing box.
- ② To compensate for non-lubricating properties of liquid or other chemical solutions pumped, larger bearings are used.
- ③ Repacking interruptions are reduced to the lowest minimum.
- ④ Damaging vibration is prevented by the larger shaft diameters.

FOR COMPLETE INFORMATION PLEASE WRITE
ON YOUR LETTERHEAD FOR HELPFUL TABER **Bulletin V-837**
TABER PUMP CO., 320 Elm St., Buffalo, N. Y.

Taber Pumps for Higher
Practical
Performance

When inquiring specify CP A4995 — see handy form pages 2-3

through the first column and thence through the series. The quality of the treated water is indicated by an electrical conductivity cell operating in the outlet from the last column. When required the resins are regenerated. The



Arrangement of Potable Water Unit

"Filt-R-Stil" unit although capable of completely demineralizing water, is regulated to reduce the dissolved solids content only to potable levels. (American Cyanamid & Chemicals Corp., 30 Rockefeller Center, N. Y.)

★

Production of Riboflavin With Previously Unused Yeast

Possible production at half cost of chemically synthesized vitamin indicated by laboratory tests

Methods for the production of Riboflavin are of particular interest at this time because of the great need for increased supplies of vitamin concentrates. Incidental to research at the Northern Regional Laboratories on the utilization of fermentation residues as sources of vitamins or directly as feeds after increasing their vitamin contents by microbiological processes, a method was developed for the production of Riboflavin (vitamin B₂) by culturing species of *Candida*, a previously unused genus of the yeast family, on solutions of glucose containing certain supplementary nutrients.

Two species of *Candida* were used in the experiments; one of them *Candida flareri*, consistently produced about twice as much riboflavin as the other. The iron concentration of the medium had to be carefully maintained at 0.01 microgram per millimeter in order to obtain good yields of riboflavin. Either more or less iron resulted in poor yields. Since the nutrients required for culturing these microorganisms are usually too rich in iron, special methods were devised for reducing the iron content of the medium. One procedure, which seems adaptable to commercial use, consists of passing the medium through a layer of granular base exchange material capable of taking up ions of iron and yielding ions of harmless base (sodium or potassium). With media treated in this way, yields of 100 micrograms of Riboflavin per milliliter were frequent, whereas yields by previous fermentation methods were about 20 micrograms per milliliter. Dry products containing 40 milligrams of Riboflavin per gram of material, (that is 4 percent of Riboflavin) were prepared in the laboratory. Such concentrates may prove to be suitable for increasing the Riboflavin content of feeds and even food products. Several industrial organizations have been running pilot plant experiments to adapt it to commercial use. (From Report of the Bureau of Agricultural and Industrial Chemistry — Agricultural Research Administration — U. S. Dept. of Agriculture, Washington, D. C.)

REDUCE PIPELINE GRIEF

MAKE FLANGE CONNECTIONS THAT STAY TIGHT..ALWAYS!

GRUV-SEAL FORGED IRON AND ALLOY GASKETS MAKE PRESSURE-PROOF JOINTS

SPECIFY PIPE AND VALVE FLANGES GROOVED FOR GRUV-SEAL GASKETS

- 1 Wrench pressure molds a tight seal that stays tight always; makes pressure-proof joints tight as a weld.
- 2 Each gasket is exact in every detail, true in diameter, circumference, and thickness; perfectly proportioned and machined to a fine smooth finish that fits groove in flange perfectly.
- 3 Adaptable for use at all flange connections, valve bonnet joints, and at joints where ready disassembly is a necessary requirement.
- 4 Available in two types, (Type O) Oval, and (Type X) Octagon; both types available in several different grades of metal for different services; wide range of sizes including all standard API sizes.
- 5 Special forging method eliminates porosity in metal and interlocks the metal fibre lines into a dense, tough structure that provides a greater factor of safety for high pressure, high temperature pipe lines.
- 6 Specify flanged connections grooved for Gruv-Seal Forged Iron and Alloy Gaskets. Write factory for name of supply house in your locality.



Gruv-Seal Forged Iron and Alloy Gasket Bulletin 45 available on request; contains descriptions of different grades of metal and complete list of sizes and other useful data. Write for your copy now.



Diamond "S" Boiler & Tank Accessories provide a greater factor of safety in the operation of pressure vessels. Catalog No. 10 describes and lists complete line of forged steel handhole, manhole cover assemblies and similar accessories. Write for your copy now.

DROP THE STEEL IMPROVEMENT & FORGE CO.

FORGINGS

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Tulsa, Okla.—National Bank of Tulsa Bldg. • Los Angeles 28, Cal.—7046 Hollywood Blvd. • New York 7, N. Y.—225 Broadway

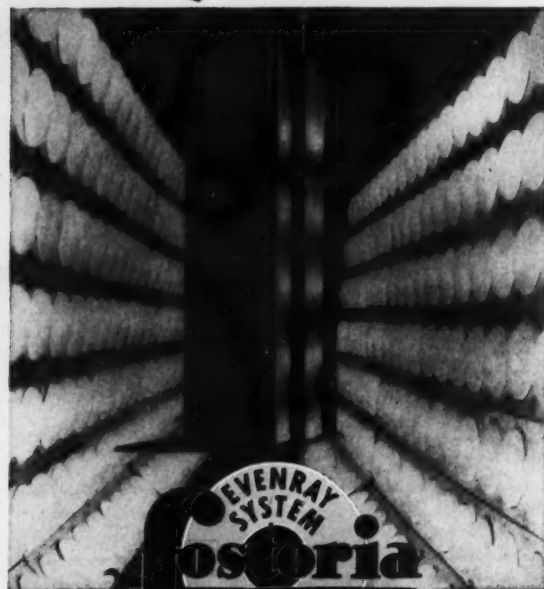
Drop, upset and press forgings from one-half ounce to 500 pounds of carbon, alloy and stainless steels and non-ferrous metals.

When inquiring specify CP A4996 . . . see information request blank, pgs. 2-3

INFRARED Means Production Savings

**Typical Example
90% SAVING
IN TIME**

A steel cabinet manufacturer cut finish baking time to 8 MINUTES from a previous 80 minute time range. The Fostoria EVENRAY System gave him this faster, more economical production and reduced rejects.



Trade Mark
Reg. U. S. Pat. Off.

**THE CHOICE OF MORE THAN 4,000 MANUFACTURERS
IN THIS COUNTRY AND ABROAD**

Because—

- 1 Evenray models utilized GOLD on all oven interiors for maximum efficiency. Gold is the best reflector of infrared rays—98% efficient.
- 2 Evenray's 2-wall construction, in conjunction with GOLD interiors provides double insulation against heat losses.
- 3 Evenray's FIRST COST is economical because component parts of each customer made system are manufactured on mass-production basis.
- 4 Evenray Systems are designed to accommodate all clear and reflector type infrared lamps available today—up to and including 1000 watts.
- 5 Evenray Systems are flexible—can be added to or altered quickly and easily. They can be suspended from ceiling, and made to fit current production lines.
- 6 Evenray Systems are listed under Re-examination Service of Underwriters' Laboratories.

Write For Literature A brochure EV-1245 describes EVENRAY SYSTEMS and shows typical installation photos. Portable equipment catalogs also available.

THE FOSTORIA PRESSED STEEL CORP.

FOSTORIA, OHIO

Export Sales Department, 401 Broadway, New York City, U. S. A.

When inquiring specify CP A4997 — see handy form pages 2-3

Page 70

Ideas

Powdered Metals Extruded to Form Synthetic Welding Wire

Many analyses produced; uses of basic process in fields other than welding indicated

Some time ago a group of engineers conceived the idea of producing, through the media of powdered metallurgy, an alloy welding rod composed of a drawn base wire clad with alloying elements over which is coated a flux covering. From this developed a method of extruding powdered metals and compacting them around a wire in much the same manner as that now used in flux coating welding rods. Heretofore powdered metals were considered immobile, resulting in the confinement of powdered metal compacts to those in which the particles moved in only one direction. The development of a method of extrusion in sufficient density to permit sintering opened the way to means whereby powdered metals will flow around corners into voids. In the welding field the extrusion of synthetic alloy wire will fill the need for an inexpensive method of producing wire alloyed with elements that make it difficult or impossible to produce by either hot or cold rolling and drawing. The finished synthetic rod is capable of being coated with the usual AC or DC welding rod fluxes and used in arc welding in the same manner as any coated rolled and drawn welding rod. The finished unfluxed synthetic welding wire presents the appearance of a rod coated with a dark-metallic appearing case. Actually, it is a small diameter base wire encased within a cladding of powdered metals.

In making synthetic Stainless Steel grade of welding wire, a base wire if ingot iron is clad with sufficient powdered chromium under the welding arc with the ingot iron base wire to produce a weld deposit of standard Stainless Steel. A 5/32" diameter base wire clad to a finished diameter of .249" (1/4") will produce approximately this analysis. There are various possibilities available in any conceivable analysis by varying the quantity of cladding to the quantity of base metal. Many other analyses of Stainless, tool, corrosion resistant, hard facing grades, etc. can be produced. Variations from the standard analysis can be obtained by varying the ratio of the base material to clad material, or which is more important, by varying the density of the cladding. The density may be varied from a fraction of drawn steel density to almost full drawn steel density by varying the pressure exerted on the powdered metal compact around the base wire. Another method of altering the density of the cladding is to vary the quantity of the lubricant used to aid in the flow of the powdered metal particles.

Close quality control of powdered metal analysis, particle size, mixing and formulating, and extruding pressures are necessary to enable one to produce synthetic wire which will give consistent weld deposits. This extra cost of quality control is offset by the relatively low cost of producing the standard stainless steel grades of welding wire. The finished cost of synthetic welding rod core wire in sizes ranging from 1/4" to 5/32" varies from 2/3 to 3/4 of the cost of mill rolled and drawn wire. This is wire completely processed, cut to length and ready for flux coating. Tolerance to finished diameters can be maintained to plus or minus .002" depending upon the shop practice for replacements can be made. Operational shocks may be cut to length before the cladding is extruded on the wire and this controls the tolerance of the finished rod. (Associated Industrial Engineers, Inc., 1505 Race St., Philadelphia 3, Pa.)

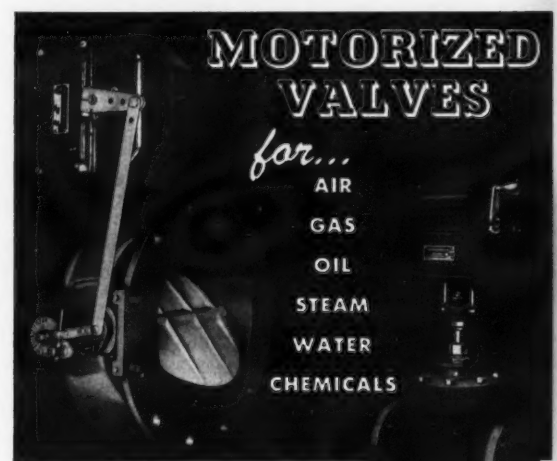
Type LN		Type NN	Type M	On-Size	Cost	CAPACITY GALLONS PER HOUR AND SPRAY ANGLE AT 1 LB. PRESSURE (Per Water)											
Female	Conn.	Female	Conn.	Male	Male	10	15	20	25	30	35	40	45	50	55	60	65
1/2 LN 60				016	206	-	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN				020	210	-	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN				020	216	-	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN		2	1/2 NN 2	1/2 M 2	028	216	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN		3	1/2 NN 3	1/2 M 3	028	220	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN		4	1/2 NN 4	1/2 M 4	042	220	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN		6	1/2 NN 6	1/2 M 6	042	225	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN 8		1/2 N 8	1/2 NN 8	1/2 M 8	060	225	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN 10		1/2 N 10	1/2 NN 10	1/2 M 10	064	420	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN		1/2 N 12	1/2 NN 12	1/2 M 12	076	420	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN		1/2 N 14	1/2 NN 14	1/2 M 14	076	421	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6
1/2 LN 18		1/2 N 18	1/2 NN 18	1/2 M 18	076	422	-	-	-	-	-	-	-	1.0	1.2	1.4	1.6

SPRAY NOZZLES... to fit the job

Whatever your requirements may be, Spraying Systems Spray Nozzles offer two important advantages: (1) spray nozzle design specific to every basic application and (2) a wide range of sizes in each type, for exact performance to fit the job. Catalog No. 22 will give you all the facts.

SPRAYING SYSTEMS Co.
4037 West Lake Street Chicago 24, Illinois
SPECIALISTS IN SPRAY NOZZLE DESIGN AND MANUFACTURE

When inquiring specify CP A4998 — see handy form pages 2-3



The most complete line of motorized valves... operate from push buttons or rheostats for remote positioning... or automatically from thermostats and other measuring instruments. Standard types for On-Off, Throttling or Proportioning control. Splash-proof, weather-proof, dust-tight, explosion-proof designs available. Write for free Catalog A2 today.

atc AUTOMATIC TEMPERATURE CONTROL CO., Inc.
Legan St. & Germantown Ave. • Philadelphia 44, Pa.

When inquiring specify CP A4999 — see handy form pages 2-3

CHEMICAL PREVIEW

FACTS/ about ROTARY PUMPS

This bulletin tells you
why and how

BLACKMER ROTARIES

are SELF-ADJUSTING FOR WEAR

WRITE NOW FOR

BULLETIN NO. 307 —

Facts About Rotary Pumps.

Bulletin No. 302 —

Pump Engineering Data.

BLACKMER PUMP COMPANY

1840 Century Ave., Grand Rapids 9, Michigan

Serving Industry for More Than 40 Years

**POWER PUMPS - HAND PUMPS
EZY-KLEEN STRAINERS**

When inquiring specify CP A5000 — see handy form pages 2-3

Baker Trucks at the House of KARAGHEUSIAN



cut man hours for
handling by 50%.



increase storage
space 20%.

**Baker Fork Trucks at the
Roselle, N. J. Spinning Plant of
A. and M. Karagheusian, Inc.**

This company is one of the world's
largest manufacturers and im-
porters of Chinese and Persian
carpets, as well as a leading manu-
facturer of domestic rugs and na-
tionally known as the "Makers of
Gulistan Rugs and Carpets". Bales
of wool, weighing from 350 to
1200 lbs. are received in carload
lots from all parts of the world.

Our files contain many case histories of Baker Trucks making similar savings
in all types of plant and warehouse operations. A Baker Material Handling
Engineer will gladly show you how they may be applied to your problem.

BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Raulang Company
2163 West 25th Street • Cleveland, Ohio
In Canada: Railway and Power Engineering Corporation, Limited

Baker INDUSTRIAL TRUCKS

When inquiring specify CP A5001 — see handy form pages 2-3

JULY-AUGUST, 1946

Ideas

Lathe Converter Performs Many Metal Working Operations

*A universal milling, grinding machine with
interchangeable precision heads*

A complete metal working machine is provided in a lathe converter available in three models for lathes from 9 to 60 inch swing. Its simple set ups make it easy to perform practically any type of metal working operation. It is limited only by the lathe on which it is used. The lathe holds the workpiece and the converter performs the operation by use of interchangeable heads mounted by bolts in a circular T-slot on compound of the basic unit. Easily put in service for such operations as milling, grinding, boring, internal keyseating, drilling and indexing on a lathe. The converter is very useful in maintenance, repair and tool making. The power driven metal working unit



Lathe converter easily mounted for milling keyways and other operations

with interchangeable heads includes a dividing head for indexing. The converter is easily moved from one lathe to another as needed.

The converter is a precision tool and has interchangeable heads for milling operations, cylindrical, tool and surface grinding, internal key-seating; used with engine lathes, milling machines, planers, shapers, boring mills, etc. An illustration of the adaptability of the device is found in the case of a marine manufacturing operation involving the milling of 17 inch keyways, 2 1/2 inches wide by 1 1/4 inch deep in both ends of a propeller shaft 22 x 9 7/8 inch OD. This required the heavy workpiece to be removed from the lathe after turning operations were completed and a new set-up made in a milling machine capable of cutting the keyways. The converter was mounted on the lathe in the tool post position after the turning operations and both keyways milled with an end mill before it was necessary to remove the workpiece. A steady-rest was used to hold the workpiece in position while using the power feed on the lathe carriage.

Another job easily performed is grinding bearing surfaces on 4 1/2 inch diameter shaft. Two bearing surfaces are ground on a shaft held between lathe centers. The operation was performed with the universal external grinding head with converter model "M," carrying an 8 inch diameter wheel with a 5/8 inch bore. All speeds and feeds provided by lathe. The one inch keyway in the end of this shaft was milled with the basic milling unit. Milling and grinding operations as well as the turning operations are all accomplished without moving the workpiece from the lathe. (Master Manufacturing Co., 1300 East Avenue A, Hutchinson, Kansas.)

Bronze Bolts in the Sky!

Overhead Power Lines and Underground Cables of the vast American Utilities Networks depend upon hundreds of devices and accessories—from giant tower structures to tiny bolts and nuts—for uninterrupted continuity of their vital service.

G&W Potheads, for example, protect the ends of the underground cables where they connect to the overhead lines. These potheads are sealed against the weather and faithfully transfer voltage with a minimum of loss.

G&W Potheads are only one phase of utility equipment which relies upon Harper Silicon Bronze Bolts and Nuts for strength, resistance to atmospheric corrosion, elimination of "season cracking" reduction of maintenance cost.

Harper manufactures and maintains large stocks of Brass, Copper, Naval Bronze, Silicon Bronze, Monel and Stainless Bolts, Screws, Nuts, Washers, Nails

H. M. HARPER COMPANY
2644 FLETCHER STREET

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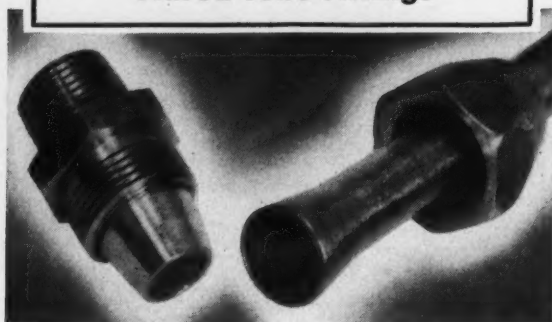
When inquiring specify CP A5002 — see handy form pages 2-3

VIBRATION TEST

by Hydraulic Equipment Manufacturer

Wins Approval

**for SUPERSEAL
Flared Tube Fittings**



Unretouched photo of fittings and tubing after test.

"After 2,000,000 vibrations . . . 1/4" throw, 1800 vibrations per minute, 2000 pounds pressure . . . SUPERSEAL fittings were still in perfect condition. There was no leakage or tendency of tube seats to break down."

Superseal Assures You...

- ★ Easier flaring of tubing especially in large sizes.
- ★ Leakproof joints even under maximum vibration and pressure.
- ★ Repeated disconnections without injury to tubing.

Features

Long 10° tapered cone provides greater seating area for tubing flare.

Inside diameter of tubing uniformly maintained . . . no obstructions at joint.

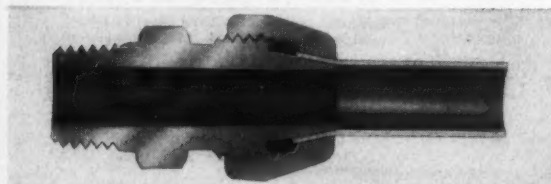
Materials . . . stocked in steel. Malleable iron, brass, aluminum or alloys on special order.

No shearing action to injure the tubing at the point of flare when the nut is tightened—instead, the tubing is actually strengthened.

Two-part fitting . . . no rings, no sleeves.

Tubing bends can be made close to fitting.

Approved by Underwriters' Laboratories for all hazardous gases and liquids



GRINNELL COMPANY, INC.

Executive Offices:
Providence 1, R. I.

Branch Warehouses
in principal cities.

GRINNELL

WHENEVER PIPING IS INVOLVED

When inquiring specify CP A5003 — see handy form pages 2-3

Ideas

Water Repellent Material Guards Fluorescent Lamps; Aids Starting

Silicone development has many applications in combating humidity

Faster starting of fluorescent lamps by the application of the water repellent material known as "Dri-film" is being accomplished on a certain type of fluorescent lamp now being made at the Hoboken, N. J., factory of General Electric Co. The material forms an invisible and permanent "rain coat" over the lamp and, when used with metal adjacent to the lamp such as a reflector, makes it practically insensitive to high humidity. The material is highly effective in forming a continuous insulating film over glass. It is applied easily and lamps can be maintained with only customary cleaning. Tests have shown that lamps when coated with "Dri-film" operate satisfactorily even under 100 per cent relative humidity.

The water repellent materials identified by the name "Dri-Film" comprise a series of products made in the course of developments in the silicone field. Many other applications are coming to the fore, as for example its use in connection with heating aids in treating vacuum tubes. (General Electric Co., Pittsfield, Mass.)

★

Semi-Automatic Machines Build Tires 50% Faster

Physical efforts of workers reduced; unvarying uniformity of product maintained

Passenger tires are now being built up to the point of vulcanization 50% faster than by old methods and with less physical energy. This advance in production techniques is achieved by means of semi-automatic tire building machines. These perform the most difficult operations of tire building cycles automatically. The tire builder feeds the materials into the machine and starts its automatic opera-



Placing bead over collapsed drum

tions, which are activated by an intricate assortment of photoelectric and electronic devices.

The first of the two illustrations shown here is the initial step in building a standard Goodyear passenger car tire. The tire builder is placing the inside bead over the collapsed drum on which the tire will be constructed when the drum has regained its normal shape. Other steps include application of four plies as the drum rotates. The second

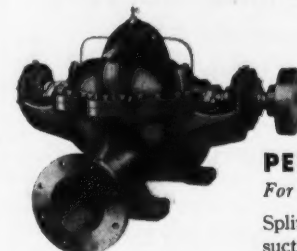
PEERLESS CENTRIFUGAL PUMPS

(FORMERLY DAYTON-DOWD)

FOR INDUSTRIAL USES

CAPACITIES TO 60,000 G.P.M.

A COMPLETE RANGE OF SIZES AND TYPES



PEERLESS TYPE "A"

For General Purpose Pumping

Split Case; Single-stage; double suction; sizes: from 8" to 42"; capacities: up to 60,000 g.p.m.

PEERLESS PUMP DIVISION

FOOD MACHINERY CORPORATION

Canton 6, Ohio • Quincy, Illinois • Los Angeles 31, California

DISTRIBUTORS IN ALL PRINCIPAL CITIES

When inquiring specify CP A5004 — see handy form pages 2-3



Simplest load-handling methods are always the best methods

"Simplest and best" means *most economical*, too! In one plant, the material was flax in 150-pound bales—slippery stuff, awkward to manage.

Elwell-Parker supplied an Electric Truck that speeds 13-bale Master Units *with safety*—eliminating waste motion—holding costs down—keeping materials moving to support 24-hour plant operations.

The E-P Man will help effect keen, modern materials-handling ideas at your Plant, through Electric Trucks and Cranes engineered and designed *especially to lower your costs*. Better send for him today.

The Elwell-Parker Electric Company, 4239 St. Clair Avenue, Cleveland 14, Ohio.

ELWELL-PARKER
POWER INDUSTRIAL TRUCKS
Established 1893

When inquiring specify CP A5005 — see handy form pages 2-3

illustration shows tire carcass with the four plies of fabric, the beads, the tread rubber, the "chafing" strips and the "breaker" strip in place, all completed and ready for vulcanization.

In addition to making easier, faster production possible,



Removing tire carcass ready for vulcanizing

the semi-automatic building machine produces a product of unvarying uniformity, unduplicated by the previous techniques. The first of these machines were installed just before the war, when critical military demands for tires made it imperative that production methods be developed to the highest degree possible. (Goodyear Tire & Rubber Co., Akron, Ohio.)

★

Valve Capillary Passage Can be Varied From 4'-600" in Length

Passage enclosed in metal container $1\frac{1}{2}'$ sq. — flow control obtained by moving an adjustable plunger

An eastern instrument company uses a basically new principle to obtain ultra-precise and continuous control of the flow of either liquids or gases through micrometer valves. Using this new principle, 600 inches of capillary passage are enclosed in a metal container one and one-half inches square. Flow control is obtained by moving an adjustable plunger thereby varying the length of the capillary passage continuously from four inches to six hundred inches. The valves are rugged and will withstand vibration and mechanical abuse. They are made of non-corrosive metals and under normal usage will not wear out or require replacement of parts. A feature of the valves is the relatively large cross-sectional area of the capillary passage which minimizes the possibility of plugging.

The flow of air and other gases may be varied over the range of 0.2 to 60 cubic inches per minute with a pressure drop across the valve of 15 pounds per square inch. Under the same conditions, the flow of water and other light liquids can be varied from 0.04 cc to 10 cc per minute. If other flow and pressure characteristics are wanted, special valves can be provided to meet such off-standard conditions. Two valves have been produced. One is a laboratory test model with a precise micrometer adjustment to demonstrate the principle of operation and is not for sale. The other is available to equipment manufacturers who use the valves as an integral part of their equipment and provide their own special means of mounting together with either manual or automatic adjustment. This valve is one and one-half inches square and two inches high. (Standard Instruments Co., 15 Elkins St., South Boston, Mass.)

WHEN

THEN

O₂ AND CO₂ AND H₂O — ALL 3 —

MUST BE EXCLUDED

YOU'VE JUGGLED YOUR SHARE
OF NITROGEN BOTTLES

76¢ PER Mcf LOOKS BETTER
THAN \$10 PER Mcf



make your own nitrogen (99+%)
with a KEMP on-the-spot generator

THE gaseous environments for modern products and processes are getting fussier every day. And desiccated nitrogen is becoming increasingly important in forestalling carbonation, oxidation, and hydration.

But why juggle nitrogen bottles when it's cheaper not to?

Counting initial cost, installation, fuel and power, and amortization—the whole business—you can make

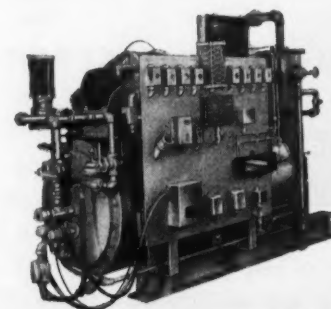
your own 99+% nitrogen and pipe it all over the plant for 76¢ per Mcf. That's an average figure. Even in cases involving high peak demands, limited storage facilities, and intermittent usage, overall costs of on-the-spot KEMP-produced nitrogen need never exceed \$1.35 per Mcf.

Quite a difference from bottled gas prices! And quite a step forward in reducing manufacturing cost! There's a coupon in the corner.

HERE'S THE BASIS-UNIT OF A 2000-CFH SYSTEM

The principle is simple: (1) complete combustion of gas with just the right amount of air to yield combustion products totally free of oxygen, (2) absorption of the CO₂ by amine scrubbing, and (3) desiccation in silica gel or activated alumina to remove water vapor. The result is 99+-% nitrogen.

The engineering isn't so simple. It requires equal knowledge and experience in both combustion and chemical engineering. But note the result—compact, automatic in every respect, and rugged! (Amine scrubber and desiccating towers not shown.)



KEMP OF BALTIMORE

PRECISION CARBURETION + ADAPTED COMBUSTION
FOR INDUSTRY'S HEAT-USING PROCESSES
ATMOSPHERE GENERATION & ADSORPTIVE DRYER SYSTEMS
FOR PROCESS CONTROL AND PROTECTION

The C. M. Kemp Mfg. Co.
405 E. Oliver St., Baltimore 2, Md.

Have one of your field engineers call ☐

Make sure we get the new literature
and data you are developing ☐

NAME

TITLE

COMPANY

PLACE

When inquiring specify CP A5006 . . . see information request blank, pgs. 2-3



WHERE PROCESSING CALLS FOR...

KETTLES • COOLERS • HEAT EXCHANGERS
CONDENSERS • AUTOCLAVES • COLUMNS

or other type of equipment in-
volving the transfer of heat.

Call on PATTERSON-KELLEY



Equipment of this kind is
our specialty...has been, in
fact, for many years. We are
staffed with competent en-

gineers to help design units to meet your require-
ments if our standard units do not fit the picture.
Our engineers understand processing and the prac-
tical application of the principle of heat transfer.

And we have the manufacturing facilities and the
skilled workmen to produce exceptionally well-made
heat-transfer units such as listed above.



THE PATTERSON-KELLEY

Company, Inc.

120 WARREN STREET, EAST STROUDSBURG, PA.

BOSTON 16, 96-A Huntington Avenue • NEW YORK 17, 101 Park Avenue

PHILADELPHIA 3, 1700 Walnut Street • CHICAGO 4, Railway Exchange Building

Representatives in All Principal Cities

When inquiring specify CP A5007 — see handy form pages 2-3

Ideas

Sprayer Develops 300 Lbs. Nozzle Pressure; Weighs Only 13 Ounces

*For insecticides, antiseptics, deodorants; can be used
in any position without danger of leaking*

A small, all-metal hydraulic type sprayer develops
an average 300 pound nozzle pressure with a single
stroke of its short $2\frac{1}{2}$ inch piston. It produces an ex-
tremely light, finely atomized aerosol spray for use with



Sprayer uses short $2\frac{1}{2}$ " piston

modern insecticides, antiseptics, deodorants, lotions and
similar solutions. The advanced type nozzle has a tiny
orifice .006" in diameter placed in front of a slotted dif-
fuser plate. This plate, with its minute openings, helps
to break the liquid into a fine mist.

When plunger of piston is pulled back, a springlock ball
check valve closes off the nozzle orifice, while the vacuum
created by withdrawal of the plunger from the cylinder
draws liquid up to the supply tube and past a gravity ball
check to fill the cylinder. Forward movement of the piston
builds up pressure which opens the ball check valve at the
nozzle and closes the one at the supply tube. Liquid is
forced through the diffuser plate and orifices, then ex-
pelled from the sprayer in a uniform billow of penetrating
mist.

An exclusive feature of the sprayer is an airlock behind
the cylinder which allows the sprayer to be used in any
position without danger of leaking. As liquid is drawn
up from the container to fill the cylinder, air current
rushes through the airlock to replace it. Movement of
air wipes the piston clean and carries excess fluids back
to the container. The sprayer is built entirely of machined
brass and stainless steel, contains no rubber or leather
gaskets. Weight under 13 oz. including $\frac{1}{2}$ pt. container.
(Cornelius Sprayer Co., Minneapolis, Minn.)

★

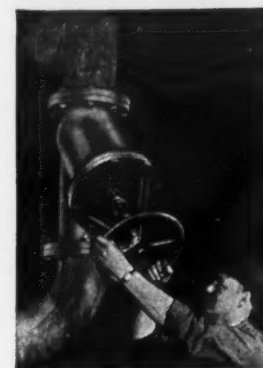
Plastic Plugging Controls Oil Well Gas-Oil Ratios

66 wells already restored; many to yields of \$1000
worth of oil a month

New life will be put into old oil wells by plastic plugging
that provides more effective control of gas-oil ratios than
materials formerly used. The plastic, a "Resinox" phen-
olic plastic, has been used as deep as 11,500 underground
to seal wells against the intrusion of natural gas. Unlike
previously used cement, embracing solids held in suspen-

ALOYCO VALVES

INSTALL THEM AND FORGET THEM!



Aloyco Stainless Steel Valves installed
in 1929 in Eastern Corporation pulp
mills for rigorous service, are still in
operation.

• Do corrosion, contamina-
tion, abrupt temperature
changes give you valve
trouble? If so, find out how
Aloyco Valves in the correct
analysis of stainless steel can
help you "install them and
forget them."

Available in a wide range of
stainless steels and corrosion
resistant alloys. Large selec-
tion of types and sizes for 150
p.s.i. to 600 p.s.i. service.
Write today for detailed in-
formation.

ALOYCO

Stainless Steel
VALVES and FITTINGS

GATE VALVES • GLOBE VALVES
Y VALVES • CHECK VALVES
LEVER THROTTLE GATE VALVES
TANK VALVES
SCREWED FITTINGS
FLANGED FITTINGS
GAUGE GLASS FITTINGS

ALLOY STEEL PRODUCTS COMPANY, INC.
1000 WEST ELIZABETH AVENUE — LINDEN, NEW JERSEY

When inquiring specify CP A5008 — see handy form pages 2-3

*You don't know
the Sabin One-Man
Truck*
*or you
wouldn't be
without it!*

AMAZING
LABOR SAVER



No helpers needed
with this truck. It
does all the lifting.
ONE MAN simply
hooks it on at top
of container and
by an easy pull on
handle automatically
lifts weights up to
800 lbs. Roller bearings
make travel easy.
EXCLUSIVE THIRD-
WHEEL FEATURE insures
better balance, insures
safety.

for
**DRUMS,
BARRELS**

Write
for
FREE

Bulletin
No. 45

THE SABIN MACHINE CO.
6534 Carnegie Ave., Cleveland 3, Ohio

ALSO TOTE PAN, BOX, CARBOY, KEG TRUCKS!

When inquiring specify CP A5009 — see handy form pages 2-3

No matter what
your recovery problem

...DUST ...FUME
...FLY ASH ...MIST
...FOG

the **COTTRELL**
Electrical Precipitator
provides highest efficiency at
lowest overall cost!

99+-% RECOVERY: Even on ultra-fines Cottrell efficiencies exceed 99+-%—closely approaching the theoretically perfect performance!

LOWEST MAINTENANCE: The Cottrell has no filters, no screens, no parts that require frequent repair, replacement or service.

ANY CAPACITY: Whether gas flow is a few c.f.m.—or millions—the Cottrell will handle any recovery job, large or small!

LOWEST DRAFT LOSSES: Cottrell draft losses are lower than any other recovery equipment—only a few tenths inch of water!

LONG LIFE: There are no moving parts in the collecting structure of a Cottrell, therefore no wear. Installations made over 30 years ago are still operating without substantial change.

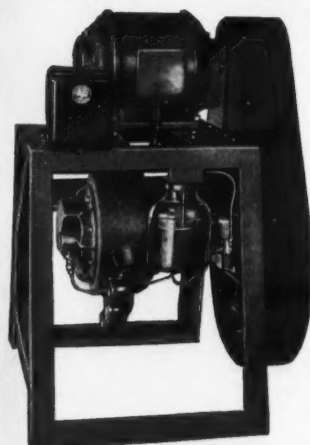
WHETHER your recovery problem involves purification of gases, nuisance abatement, or collection of values now being lost in discharge gases, find out the many important advantages COTTRELL Precipitators offer. Let our trained engineers study your requirements.

Send for this
COTTRELL
booklet!



When inquiring specify CP A5010—see handy form pages 2-3

ROTARY **LAMMERT** QUIET
VACUUM PUMPS
VACUUM TO 0.02 M.M. BAR. 3-580 C.F.M.



Investigate!
MODEL SWMF.

NEW!
Continuous
Self
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Principle
Expels the
Contaminating
Influence!

ENDURING HIGH VACUUM PERFORMANCE

LAMMERT & MANN CO.
215-21 N. WOOD ST. CHICAGO 12, ILL.

A HALF CENTURY OF SERVICE
TO SCIENCE AND INDUSTRY

Ideas

sion, the resin is introduced into the shaft as a true liquid, which permits maximum penetration. It hardens after it permeates the porous rock through which gas has been filtering. This plastic plugging method was recently announced by Monsanto Chemical Company of St. Louis and the Oilwell Chemical Co. of Fort Worth, Texas.

Of the 20,000 wells now in operation in the west Texas oil fields, between 4,000 and 5,000 are believed to be in need of plugging which will respond only to the plastic plug. Thus far 66 wells have been given a plastic plug. Formerly all were either marginal or non-productive, but today the vast majority are yielding about \$1,000 a month worth of oil.

A seven man crew can normally complete remedial operations in 36 hours. In the simplest terms the procedure is as follows (1) The flow string (metal inner tube through which petroleum is moved to the earth's surface) is removed from the well casing. (2) Instruments chart location and extent of area through which gas is infiltrating. This is just above the oil bearing strata, and may have a linear depth of 18 or 20 feet. (3) A drillable plastic bridge is lowered. This, in effect, interposes a "cork" between oil bearing and gas bearing strata. (4) The syrupy plastic resin is now introduced into the well, and is forced under tremendous pressure against the "cork" with the result that it is squeezed into the porous rock through which the gas has been seeping. In eight hours, the plastic resin hardens. (5) The affected portion of the well is re-drilled, with the drill passing successively through the plastic resin and the plastic "bridge". The well is now ready to return to production.

In a separate operation, developed by other companies and widely used since 1943, plastic is also used to exclude water. (Monsanto Chemical Co., Plastic Div., Springfield, Mass.)

Sapphire Tipped Micrometer in Use After 2,000,000 Gaugings

Micrometers available in 1-6 in. sizes

A micrometer tipped with amazingly wear-resistant sapphire is still being used in a drill plant after 2,000,000 production gaugings. Sapphire tipped micrometers are



Micrometer accurate to 0.0001-inch

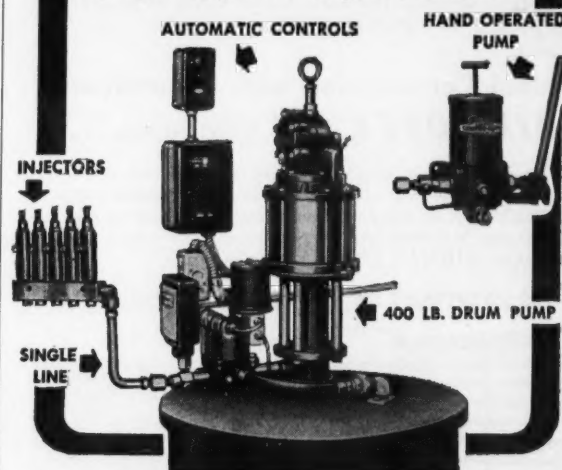
now offered in one inch to six inch sizes. English or metric styles. Accuracy is guaranteed to within 0.0001-inch. Micrometer, anvil and spindle are tipped with Sapphire. Features include adjustable spindle bushing; hollow lightweight frame; stabilized steel throughout; tool steel ground spindle thread; positive lock nut; 1/10 thousandths graduations (by precision graduation machine). (Elgin National Watch Co., Elgin, Ill.)

LINCOLN Single line CENTRO-MATIC LUBRICATING SYSTEMS

Save BEARINGS, MACHINE
HOURS, MAN HOURS,
POWER...
and PREVENT ACCIDENTS...

Today, throughout industry, Lincoln Centro-Matic Lubricating Systems are increasing bearing life on a wide variety of machinery and are helping to insure uninterrupted production. These outstanding centralized systems are designed for simplicity and dependability and are easy to install on new machines or old machines. They consist of a number of injectors—one for each bearing, a lubricant pump and a single lubricant supply line from the pump to the injectors. The pump can be time clock or push-button controlled, power operated, or manually operated. One lubricant pump can supply lubricant for a single machine or a battery of machines.

Lincoln Engineering Company maintains a staff of experienced lubrication engineers prepared to assist you with your lubricating problems. Mail the coupon for complete information.



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Proven Builders of Engineered Lubricating Equipment

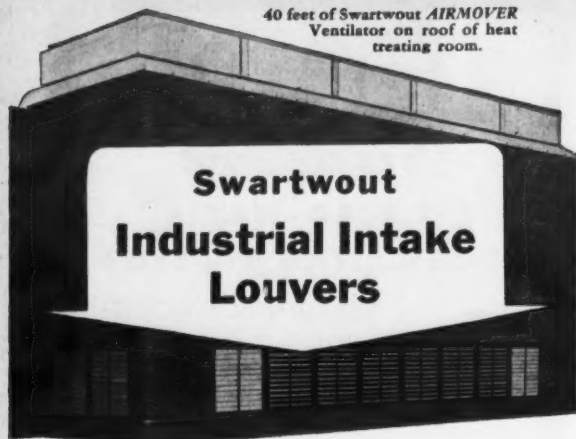
LINCOLN ENGINEERING COMPANY, ST. LOUIS 20, MISSOURI
Please send me literature on Centro-Matic Systems ☐. I would like to have catalog on Industrial Lubricating Equipment ☐.

Name _____
Title _____
Company _____
Address _____
City _____ State _____
CP B46-9

When inquiring specify CP A5012—see handy form pages 2-3

When inquiring specify CP A5011—see handy form pages 2-3

40 feet of Swartwout AIRMOVER Ventilator on roof of heat treating room.



Swartwout Industrial Intake Louvers

let abundant fresh air into your buildings at ground level—make your natural ventilation system really work . . .

● When contaminated air rises to roof ventilators to be expelled it must be displaced by cool fresh air. Swartwout Intake Louvers provide the ideal modern method for providing fresh air in commercial and industrial type buildings—avoid the drawbacks of opening window sash. Sturdy welded construction, adjustable up to 90% clear opening. Range of sizes to suit any need.

Ideal Combination with Swartwout AIRMOVER Roof Ventilators . . .

Swartwout's low height, big-capacity ventilator, the AIRMOVER virtually opens your roof to the sky. Highly efficient economical equipment that harmonizes with any building style. Write for complete information on AIRMOVER and Intake Louvers.

THE SWARTWOUT CO., 18439 Euclid, Cleveland 12, O.



Swartwout

The Airmover Line

EQUIPMENT FOR EFFECTIVE ECONOMICAL VENTILATION OF INDUSTRIAL BUILDINGS

When inquiring specify CP A5013—see handy form pages 2-3

Ideas

Luminiscent Plastic Sheet

Fluorescent and phosphorescent types lend themselves to use in signs, on lamps, light panels, etc.

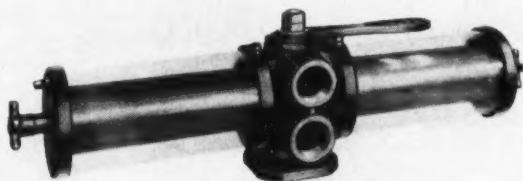
New forms of "Lucite" acrylic acid resin containing luminescent pigments—a fluorescent type which glows when exposed to ultraviolet and a phosphorescent type which glows in the dark after exposure to ordinary light are expected to find applications in creating advertising signs and parts for lamps, baseboards, directional signs of all types and panels for light switches. The afterglow of this phosphorescent is considered exceptional in the field of plastics. After exposure to light, the sheeting gives light of maximum brilliance for a matter of minutes and then continues to give light for ten or twelve hours that is sufficient to be seen by eyes adapted to the dark. The fluorescent sheeting does not necessarily store light but glows brilliantly while subjected to ultraviolet light. (E. I. du Pont de Nemours & Co., Wilmington 98, Del.)

★

Ever-Visible Pipe Line Strainer

Duplex assembly employs Lucite casing; flow diverted to other chamber to permit cleaning

Easy, visual checking to determine if cleaning is required, is featured in a new duplex pipe line strainer, employing a transparent Lucite casing. When cleaning is necessary, flow can be diverted into the other chamber, without loss of pressure, and the filled chamber can be cleaned while the pipe line maintains its normal flow. Large open area capacities afford free movement of fluids throughout the unit; 16 to 1 ratio with 12" tubes and 8 to 1 ratio with 8"



Strainer cleaned without interruption of service

tubes. Flat horizontal design makes this strainer particularly adaptable to low, close quartered installations. Strainers are made with bronze bodies, handle, caps, tie rods and nuts. Strainer baskets are available in brass, monel or other metal specified. (J. A. Zurn Mfg. Co., Erie, Pa.)

★

Counter Chronograph Records 100,000th of a Second Intervals

Times velocity of bullets, watch rates, camera shutters, etc.

An instrument which counts in the 100,000th of a second is now being used by the Western Cartridge Co. to make possible both velocity and accuracy tests with a single bullet, a feat previously impossible because the bullet was deflected by wire or foil necessary to operate the chronograph. This counter chronograph originates its own pulses

THEY'RE HEAVY-DUTY ...

THEY'RE *Skilled Lighting!*



Reflectors are the "backbone" of any lighting system ... and your system is no better than its backbone. That's why Wheeler's new "7000" Heavy-Duty Fluorescent Fixtures are worth investigating, when you plan new installations.

Wheeler's "7000's" are typical Wheeler Skilled Lighting ... engineered with skill acquired in over 64 years of specialized experience ... built to full RLM standards. All-steel construction ... rigid wiring channels ... easily-accessible enclosed ballasts ... heavy porcelain-enameled steel reflectors. Made in open- and closed-end models ... two and three-lamp 40-watt, and 2-lamp 100-watt units.

Write for detailed Bulletin 74. Wheeler Reflector Company, 275 Congress St., Boston 10, Mass. Also New York. Representatives in principal cities.

Distributed Exclusively Through Electrical Wholesalers

Wheeler REFLECTOR COMPANY
Lighting Equipment Specialists Since 1881

When inquiring specify CP A5014—see handy form pages 2-3

HIGHER EFFICIENCY for VACUUM PROCESSES

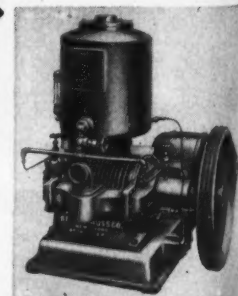
**VACUUM TO 5 M.M.
6 TO 375 C.F.M.**

Advantages: Simple, smooth, quiet, positive rotary action; tight vacuum seal and automatic lubricating system assure top mechanical efficiency and vacuum without frequent adjustments or replacements.



**VACUUM TO 10 MICRONS
15 TO 750 C.F.M.**

Advantages: Patented rotary piston design, perfect vacuum sealing, automatic water oil separation and lubrication, elimination of valve adjustments of oil flow and slow pump speed effect high speed evacuation on wet or dry operations.



Write for Bulletins
BEACH-RUSS COMPANY
46 Church St., New York 7, N.Y.

BEACH-RUSS High Vacuum PUMPS

When inquiring specify CP A5015—see handy form pages 2-3

Announcing . . .

A NEW TOWMOTOR LIFT TRUCK



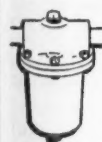
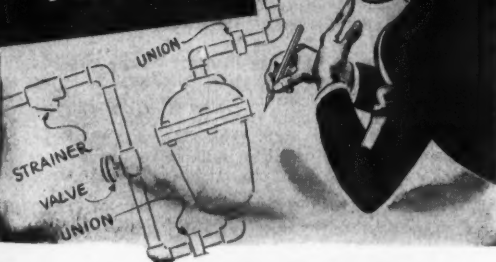
Compact and lightweight, the LT-35 now makes it economically sound for every industry, regardless of size, to enjoy the advantages of modern mechanized materials handling. The LT-35 operates with complete safety in small freight elevators, on upper floors with low load limits, in and out of motor trucks. If you have a handling problem

**TAKE IT UP WITH
TOWMOTOR
THE ONE-MAN-GANG**

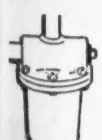
Towmotor Corp., Div. 7, 1226 East 152nd St., Cleveland 10, O.

When inquiring specify CP A5016—see handy form pages 2-3

Do away with
"DOODLE"
PIPING



In-Line



Elbow

Piping of inverted bucket steam traps is wasteful if it looks like scratch-pad doodling—in at the bottom and out at the top. But, Anderson Super-Silvertop Steam Traps permit BOTH elbow and straight-in-line piping with only one fitting. This common sense improvement gives reduced installation costs without split (pierced) gasket or cored passages.

Simplify your piping with Super-Silvertop. You save in first cost, on installation costs, besides the satisfaction of clean-cut, neat piping layouts. Have you sent for your free copy of the book, "How To Choose A Steam Trap"? Write today.

THE V. D. ANDERSON COMPANY
1954 West 96th Street • Cleveland 2, Ohio

**SUPER-SILVERTOP
• STEAM TRAPS •**

When inquiring specify CP A5017—see handy form pages 2-3

Ideas

at a regular rate of 100,000 per second. The original instrument grew out of the need of physicists to count random explosions occurring outside the device during atomic disintegrations.

In testing the velocity of ammunition, the bullet on its way to the target, starts the chronograph by passing over a photoelectric cell which starts the counting which is then halted when the bullet passes over a second electric cell at a specified distance beyond. The brain of the counter chronograph—the counting circuit is an ingenious electronic development. It counts at lightning speed using only the figures 1, 2, 4, and 8 in appropriate combinations to record the number of counts. Each figure is represented by a neon bulb. In the present commercial counter chronograph, manufactured by the Potter Instrument Co. of Flushing, L. I., N. Y., provision is made for four individual columns to time in hundredths, thousandths, ten thousandths, and hundred thousandths of a second. The four banks of lights can count 9,999 pulses, the time measurement for .09999 second. The counter chronograph can also be used to time watch rate, camera shutters and for other purposes where the rate is too high for mechanical counters.

Neoprene Coated Fiber Glass Replaces Goat Skin as Diaphragm Material

Diaphragms are more sensitive, non-porous, have high resistance to alkalis and acids

In the field of low pressure measurement and control highly sensitive diaphragms are required. Before the war, goats skin, and only skins of goats raised in the high peaks of the Himalaya Mountains were considered sensitive and durable enough for use in these diaphragms. These skins (unpunctured by mosquitos and unblemished by ticks which can't survive the rigors of the "hump's" climate) were unavailable during the war period. A solution was found which proved better than the original—diaphragms of fiber glass. The diaphragms are coated with Neoprene. The overall result is that the new diaphragms are non-porous . . . do not sag or stretch . . . are impervious to gases and vapors . . . have high resistance to alkalis and acids and more important have a much longer life than the previously used goat leather. In terms of measuring and control equipment, this means greater accuracy with less maintenance.

This is a development of the Askania Regulator Company, Chicago, Ill. (Fiber glass by Owens Illinois Corning Glass Co. and Neoprene coated by U. S. Rubber Co.)

Plastic Gives Protection In The Petroleum Industry

Corrosion may be handled in acid sludge tanks, run-down, storage and other tanks of the petroleum industry by a plastic treatment. A 12-page bulletin describes the product and additional uses are suggested. The book gives factual reports from the field and should be of interest to those confronted with corrosion in treating or handling petroleum or related products.

AMERCOAT DIVISION, AMERICAN PIPE AND CONSTRUCTION COMPANY, Dept. CP, P. O. Box 3428, Terminal Annex, Los Angeles 54, Calif.

When inquiring specify CP A5018—see handy form pages 2-3

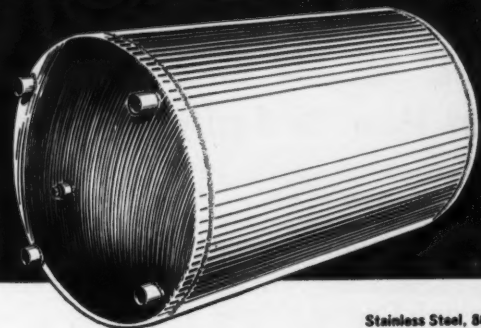
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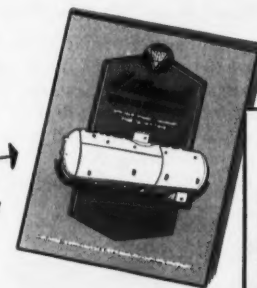


Stainless Steel, 80%
Receiver—5'0" dia.,
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Solving tough fabricating jobs for industry has been "NATIONAL'S" business for more than fifty years. Unexcelled engineering—modern equipment—plus the manufacturing skill gained through years of working with all types of steels and alloys, to meet highest code requirements—makes "NATIONAL" your best choice when you need specially fabricated equipment.

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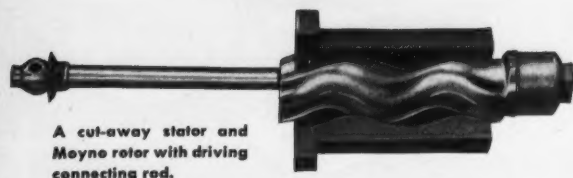
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Tin Pots
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Special Plate Work

**National
ANNEALING BOX COMPANY**

API-ASME Codes • Stress Relieving • X-ray
Pledged to Quality Since 1895
WASHINGTON, PENNA.

When inquiring specify CP A5019—see handy form pages 2-3

NO VALVES—NO PISTONS in R & M Moyno Pumps ...JUST THIS!



A cut-away stator and Moyno rotor with driving connecting rod.

It Does ALL the Work—Takes ALL the Wear—Is Easily Replaced

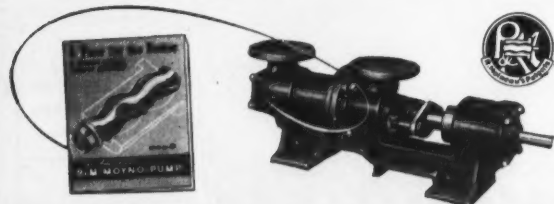
No Moyno body casting has ever worn out, and it's easy to understand why when you know how Moyno pumps work. Moynos pump without pulsation. There are no valves or other flow restrictions, no high internal velocities or turbulence. Wear is confined to the pumping element, and it can be quickly replaced. The body is merely "piping."

Why Moynos Stand Up

The amazing Moyno pumping element is shown above. A rotor travels around within a stator, revolving in the reverse of rolling rotation at the periphery. Particles in the material handled, which may collect at the several continuous seal lines, are thus gently "brushed" aside, but should they become imbedded in the stator, the rotor can pass over them without damage, and the following pockets of fluid flush them free. Optional materials for rotors and stators meet all needs.

You Should Have This New, Free Book

R & M Moynos handle everything from free-flowing liquids to non-pourable pastes; pass particles and solids in suspension—even relatively large pieces; resist abrasives and acid attack; deliver in pressures up to 1000 psi. Make your next pump a Moyno. Write today for new Book No. 20, and the name of your nearest Moyno representative.



ROBBINS & MYERS • INC.
MOYNO PUMP DIVISION • SPRINGFIELD, OHIO
HOISTS & CRANES • MACHINE DRIVES • MOTORS • FANS • FOUNDED 1878

When inquiring specify CP A5020—see handy form pages 2-3



NEW LITERATURE ★

The following literature has been issued recently by manufacturers of the products discussed and is available to chemical process manufacturing executives on request. Address requests to the publishers by using handy request form, pages 2-3, or write to the manufacturers direct.

Protection Against Acids, Alkalis, Oil and Water

A booklet describes a coating that may be brushed, sprayed, or dipped on concrete and structural steel, floors, pipes, and machinery. It offers protection against alkalis, acids, oil and water. It may be used for both inside and outside applications in areas where corrosion is a serious problem. Unretouched photographs of acid plants are shown and other plant applications illustrated and described. The corrosion-proofing of concrete, bricks, masonry, cast stone etc. is of particular interest. The coating is made from a special combination of synthetic resins and inert pigments. It dries by evaporation of the volatile solvents. Polymerization converts the residual material to a tough and non-oxidizing film. The vehicle is crystal clear and contains no drying oils, wax, steartes, or bitumen. Proper formulation renders it tough and hard or permanently plastic. Color identification of lines and danger areas may be obtained with the coating. Temperature limits of the material are 300° F. for dry application and 180° F. for wet or immersion use. Partially filled cans do not skin over and no straining is necessary. Advice on corrosion-proofing problems is offered. The booklet is available on request.

PRUFLOAT LABORATORIES, INC., Dept. CP, 50 East 42nd Street, New York 17, New York.

When inquiring specify CP A5021—see handy form pages 2-3

★

Chemical and Electrical Test Equipment for Plant and Laboratory

Electrolytic conductivity bridges and conductivity cells for specific needs are described in a new booklet. Literature deals primarily with a wide selection of conductivity cells for the checking of liquids under various conditions. Among them are the glass dip, screw-in glass, screw-in molded rubber, insertion type with a removal valve, polystyrene dip, wand type, glass laboratory flow, pipette type, motorized flow, and the fill type cells. Accessories offered include a soil cup of a design recommended by the Bureau of Soils, adjustable electrodes, a sample cooler and cell holder, filled reference cells, type RP conductivity recorders, and conductivity bridges. A solution bridge and controllers is also offered. The booklet is available upon request.

INDUSTRIAL INSTRUMENTS INC., Dept. CP, 17 Pollock Ave., Jersey City 5, N. J.

When inquiring specify CP A5022—see handy form pages 2-3

★

Units Provide Constant Rate Chemical Feeding

A bulletin describes ready to install as complete units, chemical proportioning pumps mounted with a motor and a spill-proof tank on the same base. An arrangement is made for driving the pump and agitator with the same motor. All moving parts are fully enclosed and readily interchangeable. Designed to feed against pressures up to 125 psi., the unit's capacities are adjustable while in operation over a 10 to 1 range. These feeders have 0.5 to 8.4 GPM. rates through a standard three step cone pulley drive.

They are designed to handle slurries and corrosive chemicals. Other units may be had for boiler treatment chemicals handling and are capable of feeding up to 3.5 gph. against 1000 p. s. i. g. or 7 gph. against 500 p. s. i. g. These are suitable for phosphates, sulfites, caustic soda ash, slurries, oils, fuel and lubricant additives. A model is described for feeding hypo-chlorite and other corrosive solutions and slurries. It is of the positive displacement diaphragm type and may be used against pressures up to 100 p. s. i. g. Any preset dosage ratio will be maintained automatically. No electric power is needed. Bulletin No. 1714 can be had on application.

% PROPORTIONEERS, INC., Dept. CP, 9 Codding Street, Providence 1, R. I.

When inquiring specify CP A5023—see handy form pages 2-3

★

Agitation and Blowing Turbo-Compressors

The agitation and blowing of acid tanks, flotation, chemicals, plating, sewage, tanning, yeast, and ice tanks is accomplished with turbo-compressors according to bulletin which describes their use. The turbo-compressor discussed is a two bearing unit built on the centrifugal prin-

WHAT are your Acid-handling needs

Chemical Stoneware Offers Many Advantages

Investigate acid-proof chemical stoneware for handling corrosive liquids—particularly for vessels of large size and complicated shapes to which other materials are not usually suited.

General Ceramics can furnish many of the acid-handling stoneware items you need right from stock and, on special items, is prepared to function from blueprint to finished product, to your individual requirements.

Check over the titles of bulletins listed at the right. Any that apply to your problems will be sent to you without obligation. Write for them on your business letterhead.

ASK FOR THESE BULLETINS BY NUMBER

- Centrifugal Pumps Bulletin No. 211
- Exhaust Fans and Blowers Bulletin No. 212
- Plugcocks and Valves Bulletin No. 131
- Filtration Equipment Bulletin No. 271
- Tanks, Jars, Pots and Storage Equipment Bulletin No. 111
- Towers Bulletin No. 114

**GENERAL CERAMICS and
STEAITE CORP.**
Chemical Equipment Division
Kearny, New Jersey



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PORTLAND, ORE.
SAN FRANCISCO
HOUSTON
TORONTO

When inquiring specify CP A5024—see handy form pages 2-3

New Literature

ple. It builds up to its rated pressure regardless of the depth of the liquid in the tank or of its nature. Power costs are in direct relation to the amount of air being used at any one time. The machine does not add oil to the air which is passed through it. If air filtration is desired, it can be had by means of standard filters. Records show maintenance costs have in some cases averaged a dollar per year per machine. The comparatively low speeds at which the machines operate insure quiet vibrationless operation. Capacities are offered for agitating liquids up to 10 to 12 feet in depth of liquid (water). For other liquids the depth will vary as the specific gravity of the liquid. Volume of air varies from one to fifteen cubic feet per minute for each square foot of surface area, this depending on the amount of agitation required. Pictures and diagrams show installations and operating features. A written request brings the booklet.

THE SPENCER TURBINE COMPANY, Dept. CP, Hartford 6, Connecticut.

When inquiring specify CP A5025 — see handy form pages 2-3

Non-Inductive Precision Resistors

This illustrated bulletin contains detailed information on a complete line of $\frac{1}{2}$ and 1 watt non-inductive, pie wound, plus or minus 1% precision resistors. Described also are electrical, mechanical, and dimensional data on the various mountings and terminals, and lists of all values both available from stock and made to order. These products are used in voltmeter multipliers, laboratory equipment, radio and electrical test sets, attenuation pads, and electronic components requiring extremely accurate resistance. Specially enameled alloy resistance wire is non-inductively wound on a non-hygroscopic ceramic bobbin. Vacuum impregnation is resorted to with a special varnish which provides additional insulation and protects the winding against humidity. The varnish coating may be supplied with a fungicidal agent for tropical use. Many types of windings are described including hermetically sealed non-inductive units, single-layer wound low inductance vitreous enameled units, and special precision resistors. Ohm ratings are from 0.1 to 2,000,000 ohms. The bulletin 126 is available on request.

OHMITE MANUFACTURING COMPANY, Dept. CP, 4835 W. Fournoy St., Chicago 44, Illinois.

When inquiring specify CP A5026 — see handy form pages 2-3

Stone Laboratory Equipment

Natural quarried stone is ideally suited to the chemical laboratory since it is highly resistant to corrosion and is offered in two varieties. One variety has little or no talc while the other is high in soft mineral content. The material is said to be non-staining and has no surface glaze or coating. Tests have shown the grade with out talc to have withstood a two-year Hypo test without ill effect. A new booklet describing these two materials has been released and contains a number of laboratory pictures. Table tops and sinks are discussed in considerable detail and drawings are included to show construction features. Installation diagrams are given adequate space. Hoods being as important an item as they are, get full treatment. Copies available on request.

ALBERENE STONE CORPORATION OF VIRGINIA, Dept. CP, 419 Fourth Avenue, New York, N.Y.

When inquiring specify CP A5027 — see handy form pages 2-3

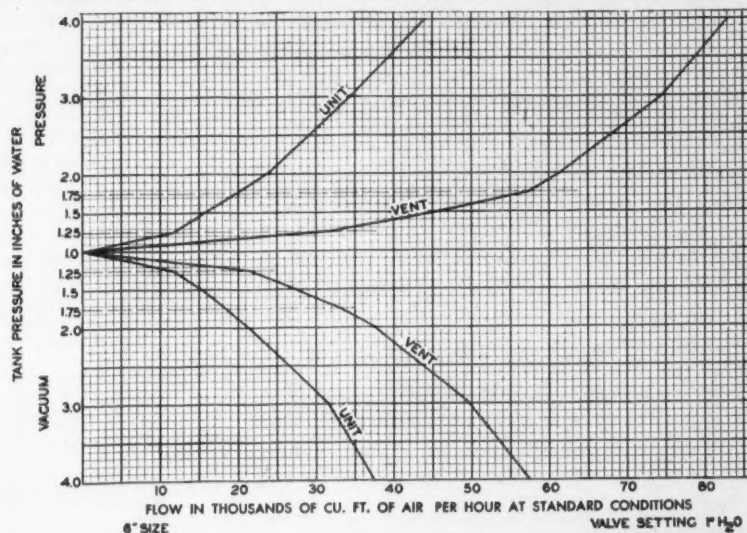
JULY-AUGUST, 1946

FLOW-TESTED *Not* GUESS-TESTED Comparison Invited!



FLOW CAPACITY CHART

6 Inch "VAREC" Fig. 20 Conservation Vent Valve and Fig. 58 Conservation Vent Unit (Pressure & Vacuum Valve with Flame Arrestor)



All "VAREC" approved Venting Equipment is actually **FLOW-TESTED** in our modern laboratory — **NOT GUESS-TESTED** — **NOT CALCULATED** — **NOT EXTRAPOLATED**.

You can **DEPEND** upon "VAREC" Capacity Curves being accurate.

With Our Compliments!

We will send you a "VAREC" Slide to obtain U.S. Standard dimensions for coarse and fine thread series, U.S. Standard (and other commercial sizes) Woodruff Keys, and American Standard Pipe Threads, plus decimal equivalents, millimeters into inches and other pertinent engineering data.

THE VAPOR RECOVERY SYSTEMS COMPANY COMPTON, CALIFORNIA

NEW YORK CITY — CHICAGO, ILL. — HOUSTON, TEX. — TULSA, OKLA.
Agencies Everywhere — Cable Address VAREC-COMPTON (All Codes)

Here's information brought up to date with drawings, illustrations, descriptions, and engineering data on all "VAREC" Products so that your specific requirement can be determined at a glance.

SEND FOR GENERAL CATALOG No. P-7 NOW

When inquiring specify CP A5028 . . . see information request blank, pgs. 2-3



SCALES

One Or a Thousand The Cost Is Reasonable

Scales by our special process at an attractive price — regardless of quantity — even up to 100" long. Lineal scales of plastics and special materials can be had individually calibrated.

These scales are outstanding in accuracy — being made from a machine divided master scale (or individually calibrated). Scientific equipment and skilled personnel insure this quality. The easy-to-read feature characterizes all Maymer scales.

Yes, Name Plates, Too

We make name plates of engraved lamacoid — distinctive in appearance and reasonable in cost. Whatever your needs — scales, indicators, dials, name plates — in whatever quantity — it will pay you to get our prices.

MAYMER

CORPORATION

10896 BERE A ROAD CLEVELAND 2, OHIO

When inquiring specify CP A5029 — see handy form pages 2-3

New Literature

Thermoplastic Hydrocarbons

A bulletin describes resinous materials that range from hard brittle substances to tough products with some of the characteristics of elastomers. Their surfaces may be tacky, wax-like or mar-resistant. Proven applications of these products are laminating paper to paper and paper to foil, the production of corrosion preventives, binding of fibrous materials, and in lining tanks for acid service. These resins do not have very high molecular weights nor are they in general of the type of structure found in colloids and gels. The range of softening points of the resins is shown graphically. Of particular interest is the ability of some of the resins described to retain their pliable rubbery properties at low temperatures and still be strong and tough at the higher working ones. The temperature necessary to obtain a working viscosity is from 200° to 500° F. Six types of resins are covered. Some other uses of these thermoplastics include the lining of chemical vats, as liners in the electroplating industry, as moisture vapor barriers, rubber extenders, sealing compounds, pipe coatings, baking varnishes, and tile binders. All the resins may be handled cold with the proper solvents or may be applied hot by any of the usual methods. Copies of the bulletin are supplied on request.

KENDALL REFINING COMPANY, Dept. CP, Specialty Sales Department, Bradford, Penna.

When inquiring specify CP A5030 — see handy form pages 2-3

★

Switchboard and Portable Electrical Instruments

Volmeters, ammeters, and wattmeters are well covered in a booklet that describes several models of each meter. Their use is amply distributed throughout the electronics, electrical, aviation, chemical, and transportation fields. Three different systems are described in the publication, the moving coil, electro-magnetic, and the electro-dynamometer. Each has a movement of light, rigid construction, balanced in jewel bearings. Shunt leads for instruments up to 500 amperes are furnished in four ft. lengths, above this range in eight ft. lengths. Shunts are vital parts of this type of instrument and deserve special attention. Selected alloys are used so that they have a zero temperature coefficient and no thermal electric effect. They are constructed to have a 50 milli-volt standard drop. Large shunts are made of pure copper and machined to fit the various bus-bars, saving labor in making connections. Shunts of 1000 ampere capacity and below can be furnished slotted for additional bus-bars if desired at slight additional cost. Shunt dimensions are given. A section on how to use the instruments is included. A page is included to show the advantages of the special instruments offered. Instrument description concludes this booklet which is available on request.

THE NORTON ELECTRICAL INSTRUMENT CO., Dept. CP, Manchester, Connecticut.

When inquiring specify CP A5031 — see handy form pages 2-3

★

Switches for Gaging Devices and Controls

A booklet on small electrical switches is divided into four parts. Part one deals with these switches in gaging devices and is subdivided into five sections. Part two covers their uses in electrical controls and has four sections. The third section discusses the switch as a unit from the stand point of construction, operating principles and contacts and its use in gaging and sorting operations. Part four contains



That is Why Sales of SPERRY FILTER BASES HAVE MOUNTED STEADILY

For more than a half century Sperry has specialized in industrial filtration. Designing and developing, for the incredibly diversified types of filtration demanded by modern industry, an enormous variety of filter papers, filter cloths, filter bases of glass, wool, asbestos, vinyon, rubber and woven metals... stainless steel, monel and other materials... as well as special bases to meet unusual requirements.

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Filter Base Division

D. R. SPERRY & COMPANY

Batavia, Illinois

When inquiring specify CP A5032 — see handy form pages 2-3

HOT WATER LIKE THAT!



with the Johnson "Instant" Heater



Where steam is available, heating water or other liquids is a snap with the Johnson "Instant" Heater. Hook it right up to your high pressure steam lines—its simple, rugged design eliminates any need for reducing valves. This means more heating, and faster heating, per unit of length. Years of dependable service have made it industry's favorite—for heating water, oil, and process liquids, for preheating boiler feed water and for booster service. Available with steam chamber of full pipe-thickness copper pipe or with lower cost all steel construction. All sizes, capacities.

Write for Bulletin

The Johnson Corporation
826 Wood St., Three Rivers, Michigan

When inquiring specify CP A5033 — see handy form pages 2-3

New Literature

the Do's and Don'ts for the various applications of the switches. The gaging of mica to the precision required in modern electronic tubes is an unsatisfactory operation when done by hand. These switches are used in a gage to do this quickly. In a magazine stitching plant, finished books are turned out at the rate of 6000 an hour and the small switches described see that not one defective copy reaches the delivery table. This particular application is discussed at length in the booklet. A machine for automatic graduation engraving is described and pictured. Small switch operation of electrical counters is treated as are their other special uses. Surprisingly these small switches are quite rugged and will control 1200 volt amperes at 460 volts A. C. The bulletin is freely available.

MICRO SWITCH DIVISION, Dept. CP, First Industrial Corporation, Freeport, Illinois.

When inquiring specify CP A5034 — see handy form pages 2-3

★

Dust and Vapor Collectors For Machine Operations

Fine metallic dust and harmful vapors may be drawn from the air around many types of machines by self contained collecting units. A new booklet describes two dust collectors and a vapor collector of small dimensions. The dust from grinders, polishers, buffers, belt sanders, with a belt over six feet long, disc grinders, disc sanders, and abrasive cut-off saws may be satisfactorily collected. Model 1150 is for large installations while model 420 is suited to smaller applications. The booklet gives drawings and pictures of typical installations with some of the problems solved. A motor driven fan gives ample suction while the cyclone separator removes most of the dirt and dust. A second stage air filter of fireproof glass gets any remaining dust from the air before it is returned to the working space. The vapor collector described, stops vapor from collecting about screw machines, centerless and wet tool grinders, etc. It is said to stop fire hazards and damage to electrical equipment. Copies available on request.

AGET-DETROIT COMPANY, Dept. CP, 602 First National Bldg., Ann Arbor, Michigan.

When inquiring specify CP A5035 — see handy form pages 2-3

★

Booklet Gives Data on Standard Cells

Increased uses of potentiometric instruments for measuring, recording and controlling of temperature, pH and other factors has given the chemist and engineer a broad knowledge of the subject. The standard cell is a standard of electromotive force for use in a potentiometer circuit and is one of the vital parts of the instrument. An informative discussion on the standard cell is contained in this booklet. It will help anyone to amplify his knowledge of the standard cell, for it requires replacing at intervals and its quality has a direct relation to the accuracy of the potentiometer in which it is used. Information is given on the historical background and various systems which have been developed. A description of the normal cell and its characteristics is of special interest. Other facts on the unsaturated cell, temperature coefficient, hysteresis in standard cells, abnormal cooling, current withdrawal, constancy material preparation and standardization are included. Copy of bulletin No. 1 is available on request.

THE EPPLEY LABORATORY, INC., Dept. CP, Newport, R. I.

When inquiring specify CP A5036 — see handy form pages 2-3

JULY-AUGUST, 1946

DURA PLASTIC

a general purpose packing



**HERE IS A DEPENDABLE
semi-metallic packing for general use in
your plant . . .**

Dura Plastic is constructed of selected metallic shreds, fibres, lubricants and special binders. It provides an improved stuffing-box service for water — air — steam — gasoline — oils — and chemicals. Effective on temperatures from —50° F. to 900° F.

DURA PLASTIC FEATURES:

- Economical — low first cost, low maintenance.
- Pliable — forms around shaft without "breaking".
- Resilient — retains resiliency and lubrication.
- Metallic — metallic shreds reduce frictional wear.

FREE ENGINEERING COUNSEL
ON YOUR PACKING PROBLEMS

DURAMETALLIC



CORPORATION

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NEWARK • BATON ROUGE, LA. • PITTSBURGH • ST. LOUIS • SAN FRANCISCO • SEATTLE • SALT LAKE CITY • TULSA • YOUNGSTOWN, OHIO

When inquiring specify CP A5037 . . . see information request blank, pgs. 2-3



DIE-MOLDED RING SETS. Also available in combination with end or alternate rings of Durametalllic metal foil packing.



BULK DURA PLASTIC. Consists of long asbestos fibres and metallic shreds adequately lubricated throughout. Contains a special resilient binder.

Pusher Types of Gas Oil and Electric Furnaces

The pusher type of furnace in a variety of designs offers uniform heat treatment of products of various size, weight or quantity. A recent bulletin describes this type. The pusher furnace is relatively free from mechanical complication of the parts subject to heat and its time cycle may be varied over a great range. It is used for annealing or normalizing castings, forgings, stampings or special shapes. Work loaded on trays or shoes may be hardened or drawn. Pictures of installations in many plants are shown. Installation drawings are contained on the last page and show some of the features offered. As to the method of handling; charging, moving, and discharging the work may vary quite a bit with the nature of the product and process. Stock may be discharged from inside the chamber at maximum temperature to a continuous quenching tank. Or it may be preheated, heated at maximum temperature and cooled for fixed or variable periods at different temperatures. Pusher mechanisms are built for electric motor, compressed air, oil or water hydraulic systems. Work may flow in a straight line or in counter-flow movements in the chambers. Other features are pointed out in the booklet which is sent on request.

W. S. ROCKWELL COMPANY, Dept. CP, 200 Eliot Street, Fairfield, Conn.

When inquiring specify CP A5038 — see handy form pages 2-3

★

New Features in Belt Conveyor Idlers

An interesting booklet of 26 pages describes a new line of belt conveyor idlers. After a short historical summary, the proper selection of idlers is taken up. Idler spacing is stressed along with alignment and information on available styles. Roller-bearing belt idlers are next covered with many mechanical details given in diagrams and pictures. A graph is given showing impact absorption plotted against surface distortion. 14 different styles are shown and their dimensions and belt widths given.

One of the types featured is a rubber covered spiral return idler built for severe long time service. It combats ice formation by means of its rubber to rubber contacts. It may be used for corrosive material handling, also for powdered abrasives with less wear than is normally experienced. It is constructed of flat-bar steel helically spiraled. Each spiral has right and left hand sections that center the belt. A specially extruded rubber is snapped around the bars of the idlers and may be replaced in the field.

Ball-bearing idlers are shown in three styles and are applicable to light service and narrow belt widths. The bearings are sealed against dust and dirt. Bulletin No. 463 may be had by writing.

CHAIN BELT CO., Dept. CP, 1600 W. Bruce St., Milwaukee, Wis.

When inquiring specify CP A5039 — see handy form pages 2-3

★

Multiple V-Belt Drive

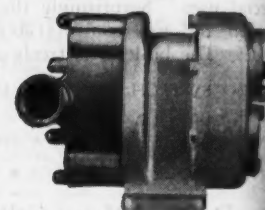
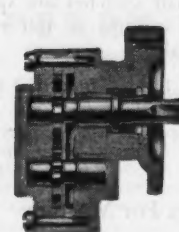
This is a simple non-technical booklet that handles the development of this type of power transmission equipment and presents the advantages offered to drive users. Chapter headings are Delivered Horsepower, Drive Durability, Adaptability to Fluctuating Production Schedules, Savings In Man Hours and Shop Space, and Economy of Installation And Maintenance. All forms of industrial power transmission reached new peaks of efficiency during the last two decades. During that time the multiple V-belt drive won the recognition of power transmission engineers. Also a long list of sound engineering advances were made in that period. One feature of the drive is that the more

APPLYING **FLOW-MASTER** EQUIPMENT to Continuous or Batch



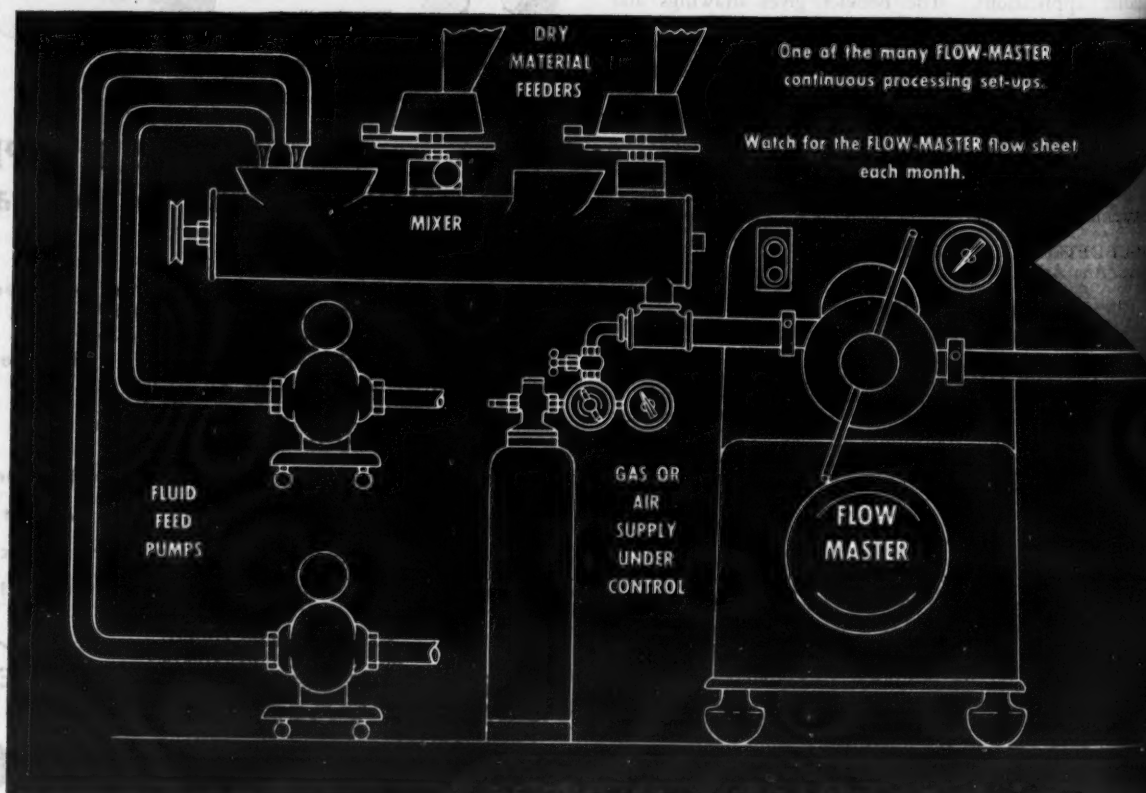
FLOW-MASTER LABORATORY MODEL

Used as a pilot machine or part of a pilot processing line, it enables you to check material variations and other factors with small quantities of material. Results so produced can be duplicated in actual production simply by using the same settings for temperature and pressure on your standard FLOW-MASTER equipment.



FLOW-MASTER SANITARY PUMPS

Will transfer, meter or proportion. Incorporate such unique FLOW-MASTER features as automatic compensating wear control which enables them to maintain volumetric efficiency longer. Handle light or heavy viscous material. Positive displacement. Stainless, easy to clean.



MARCO COMPANY Inc.,

Processing of Chemical Products

FLOW-MASTER KOM-BI-NATOR

Combines many of the functions of several special-purpose machines—grinds, mixes, blends, texturizes, emulsifies, stabilizes, bleaches and, in addition, homogenizes by means of the FLOW-MASTER principle. One or more Kom-bi-nators, with FLOW-MASTER transferring, metering and proportioning pumps, can be adapted to continuous processing of a wide variety of products in a single, fast, continuous operation.

FLOW-MASTER HOMOGENIZER

Absolutely original in its application of a new, scientific principle of homogenization at comparatively low pressure. Homogenization is accomplished by a series of consecutive actions, each of which brings your product one step nearer perfection in one continuous trip through the machine. Features include automatic compensating wear control, stainless construction, quick, easy cleaning, etc.

FLOW-MASTER Equipment, by applying an entirely new, scientific principle to processing operations, makes it possible to convert hundreds of batch methods into fast, low-cost continuous operations.

By means of suitable combinations of FLOW-MASTER Proportioning Pumps, Continuous Mixers, Homogenizers and Kom-bi-nators, many of the operations of grinding, mixing, blending, texturizing, emulsifying, stabilizing, bleaching and homogenizing can be accomplished in a single, continuous operation.

The results: Faster production, product quality, lower manufacturing costs, new processes and often entirely new products.

Marco facilities include an experienced research laboratory which is prepared to help you convert from batch to continuous processing by means of FLOW-MASTER Equipment. Your inquiries and problems are invited. Or send for Catalog No. 10 which contains details and engineering data on FLOW-MASTER Homogenizers and Kom-bi-nators. Sanitary Pumps are covered in Catalog No. 25.

Compounds • Asphalt Paint • Asphalt Emulsions • Waxes
Textile Solutions • Organic Dyes • Paper Coatings • Varnishes
Inks • Fibres • Blending • Latex • Pigments • Colloidal Suspensions
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Adhesives • Waterproofing • Polishes . . . and Many Others



Third and Church Sts., Wilmington 50, Del.

When inquiring specify CP A5040 . . . see information request blank, pgs. 2-3

New Literature

load that is put upon it the tighter the grip. Freedom from undue strain on any one belt or groove is another advantage of the design. If some of the belts in the drive fail, the remaining ones are able to carry the load until replacement can be made. Operational shocks may be withstood without transmitting those shocks to the driven equipment. Lower motor and belt costs are mentioned together with longer bearing life. The 16 page booklet may be had without charge.

MULTIPLE V-BELT DRIVE ASSOCIATION, Dept. CP, 22 West Monroe Street, Chicago 3, Illinois.

When inquiring specify CP A5041 — see handy form pages 2-3

Food Drug Cosmetic Law Quarterly

The first issue of this new quarterly contains data valuable to those interested in the legal aspects of the administration and developments in the Food, Drug and Cosmetic Act. Essentially, this new quarterly is published to stimulate and facilitate exchange of professional views in a highly specialized field of law, as well as to reflect unfolding pertinent developments of interest and importance. Each issue presents signed articles by specialists, public officials, and other authorities on the legal problems involved in the preparation, packaging, labeling, storage, and distribution of foods, with respect to nutrition, health, and the general public welfare. In addition, are notes on legislative, administrative and judicial developments. Some of the articles of interest in this first issue are — Preventing Economic Adulteration of Food, Federal Food Standards, Food Products Liability Law, Handling Food Products Liability Cases. Single copies are available at \$2.50 each. Yearly subscription price \$10.00 per year which includes a binder to hold one year's issues. Send requests directly to the publisher named below.

COMMERCE CLEARING HOUSE, Inc., Dept. CP, 214 N. Michigan Ave., Chicago 1, Ill.

When inquiring specify CP A5042 — see handy form pages 2-3

New Synthetics for the Electrical Industry

Gloves and uniforms made of lint free fabrics, flame resistant cable insulation, telephone handsets, injection molded grommets, knobs and dials, foil laminations and spiral wound coil covers, molded electrical set covers, and extrusions both flexible and rigid — all of these and more are covered well in a new book written specifically for the electrical trade and graphically illustrated. A novel index gives information as to probable uses as well as contents. Films, foils, sheets, molding materials, yarns and fabrics, together with special chemicals such as organic phosphates are listed. Films and foils described are noteworthy in that they have a low space factor which is very important in many electrical installations. Graphs and pictures are given to help explain uses. The effect of humidity is important and is amply handled. Flame resistant and self extinguishing molding materials are treated.

Among other uses of the products described are: yarns for tracers, molded radio housings, plastic tool handles, fluorescent lamp parts, an ingenious fuse puller and current tester, film motor insulation, and spiral wound tubes. A brief note as to the type of technical service offered in connection with the products described concludes the book. Copy available on request.

CELANESE CORPORATION OF AMERICA, Dept. CP, 180 Madison Avenue, New York 16, N.Y.

When inquiring specify CP A5043 — see handy form pages 2-3

ARMSTRONG

Unit Trapping

**\$250 SAVED
PER SEASON**
—Canada

**CUTS COOKING
TIME 75%**
—Chicago

**95% LESS
MAINTENANCE**
—Ohio

**27% SAVING
ON FUEL BILL**
—New Hampshire

—Still Pays

BIG DIVIDENDS!

ARMSTRONG long ago made it practical and profitable to use UNIT TRAPPING* by developing:

1. A trap that does not require attention.
2. Small traps with big capacity.
3. Moderately priced traps.
4. Scientific data on how to use traps.

TODAY, ENGINEERS EVERYWHERE KNOW THAT AN INDIVIDUAL TRAP SHOULD BE USED ON EACH DRAIN LINE, YET THERE ARE STILL NUMEROUS PLACES WHERE OLD-FASHIONED TRAPPING IS COSTING PLANTS MONEY EVERY DAY!

It will pay such plants to give "trap modernization" top priority in postwar planning. Most jobs require only small expenditures and little labor, yet they pay big dividends. Ask for recommendations. ARMSTRONG MACHINE WORKS, 880 Maple St., Three Rivers, Mich.



***ARMSTRONG UNIT TRAPPING**

WHAT? It is systematic planning of trapping to provide an individual trap of correct size and type for each separate steam condensing space.

WHY? Prevents short-circuiting, air locking, water pockets, sluggish drainage. Purges both air and condensate.

WHERE? Every place where steam is used.

WHEN? The sooner the better.

HOW? See your local Armstrong representative, or write.

ARMSTRONG Inverted Bucket STEAM TRAPS
Over a Million in Use

When inquiring specify CP A5044 — see handy form pages 2-3

New Literature

Shakeout With Automatic Flask Loader

Considerable work is attached to the practice of shaking out flasks often weighing 150 pounds or more. In one plant only one out of ten applicants was strong enough to do this work. A booklet describes a shakeout and automatic flask loading machine that does this hard work without any manual lifting or effort. The flask is carried to the shakeout by a hoist, the sand removed, from the flask and casting by the flowtex. The casting is then removed automatically and the sand is piled in windrows, also partially cooled and aerated. A certain foundry was able to produce 10,000 extra castings a month by this method with costs for shaking-out down to 1/2¢ per man per flask. A complete description of the operation is outlined and foundry pictures show working conditions and the fact that two men can handle the equipment. One man attaches the tongs to the flasks and guides them. The other removes the bottom boards and piles empty flasks. One throw of a single lever and the automatic flask loader completes a full cycle. The flask is lifted, deposited on the receiving table, and tongs returned to the foundry floor under electric power. A Mold set-down machine is described on the last page of the bulletin which allows a boy of 115 lbs. to handle newly prepared molds weighing 120 lbs. with ease. Further information will be gained from the bulletin which will be sent on request.

ROBINS CONVEYORS INC., Dept. CP, Division of Hewitt Rubber Corp., Passaic, N. J.

When inquiring specify CP A5045 — see handy form pages 2-3

★

Spudders for Water Gas and Oil Wells

The ability to drill fast under constant punishment is desired in spudders. This bulletin describes a line of these machines that offer some improvements. The features provided include a rubber shock absorber, centralized controls, telescoping mast, all-welded steel box-shaped frame, roller ball and needle bearings, and precision gauges. These improvements provide for speed, ruggedness, smoothness, and relative freedom from maintenance. Pictures of completed and partial assemblies are included. Specifications and a long list of recommend equipment for use with the spudder described concludes the booklet. Copies may be had by writing.

INTERNATIONAL DERRICK AND EQUIPMENT CO., Dept. CP, Columbus, Ohio.

When inquiring specify CP A5046 — see handy form pages 2-3

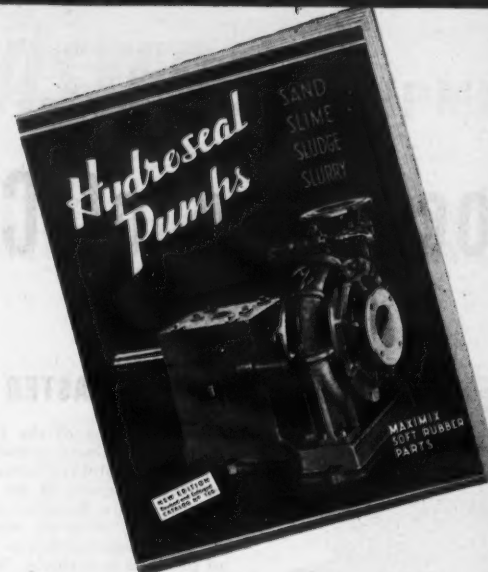
★

Chlorination Instruction Book

A description of Perchloron, a high test calcium hypochlorite, is contained in this 50-page booklet. Perchloron is now available for use as a bactericide in the food industry for the prevention of food contamination by microorganisms. Following a description of Perchloron, which is a 70% available chlorine, the booklet gives instructions on methods of preparation of solutions for a wide variety of uses. Feeding methods are described with illustrations to show a number of recommended devices which may be used. Procedures for the determination of residual chlorine are also outlined. Copies of the book are available on request.

PENNSYLVANIA SALT MANUFACTURING CO., Dept. CP, 1000 Widener Bldg., Philadelphia 7, Penna.

When inquiring specify CP A5047 — see handy form pages 2-3



Specially Designed for Abrasives Pumping

Hydrosal prevents abrasive solution being pumped from wearing the sides of the impeller and the pump side plates. Maximix Rubber Pumping Parts prevent abrasive solution from coming in contact with any metal part of the pump. Result—Power savings of 1/3 to 1/2. Maintenance reduced to a fraction, for Maximix generally outlast metal 4 to 6 times or more. Maximix Parts take the wear, and they are easily replaced in the field, making the pump "good as new" in efficiency and capacity. Send for Bulletin 140. The Allen-Sherman-Hoff Co., 1433 Locust St., Phila. 2, Pa. Representatives in Most Principal Cities.

When inquiring specify CP A5048 — see handy form pages 2-3

Don't lift or rock Barrels



Up to 1000 lb. barrels,
loaded or unloaded auto-
matically with a

THOMAS ONE MAN BARREL TRUCK

One of the world's toughest jobs has been licked by THOMAS ONE-MAN BARREL TRUCK. It's an easy job to handle a heavy loaded barrel alone, without rocking, straining or lifting. Simply engage sliding hook in rim of barrel, pull back. Barrel slides on truck without trucker touching it. Perfectly balanced. Rolls on rubber tires, Hyatt Bearings. Order one on free trial. (P.S. We've had only 2 come back in 10 years!)



Manufacturers of over 1000 different types of truck casters, wheels. Write for catalog. THOMAS TRUCK AND CASTER CO., 6755 Mississippi River, Keokuk, Iowa.

When inquiring specify CP A5049 — see handy form pages 2-3

New Literature

Modernization of Old Condenser Plants

The maintenance of a high vacuum in the condenser and the removal of air from the condensate are prime considerations to efficient continuous production of power. A recent booklet describes steam air ejectors and their use in modernizing old condenser plants. The ejectors are designed to meet the conditions of the individual installation. The principle of operation is gone into and several photographs illustrate this. Types of steam jets are discussed, as are inter-after condensers and air ejector accessories. A table gives the materials of construction used in the assemblies. There are steam jet air ejectors for special service conditions such as hogging ejectors and priming ejectors used where the condenser is located higher than the water supply. Engineering data is given along with a graph showing mixture temperature against pounds vapor per pounds air. A chart shows maximum pounds of steam condensed per hour along with pounds per hour air leakage. The other tables in the book will help the engineer make suitable selections. A copy may be secured by writing.

CONDENSER SERVICE AND ENGINEERING CO., INC., Hoboken, N.J.

When inquiring specify CP A5052
— see handy form pages 2-3

Continuous Centrifuges

Extraction of solids from liquids and the separation of immiscible liquids of unequal specific gravity is done with centrifuges at low cost. Both screen and solid bowl types are covered in a booklet just released. These two types are available in a wide variety of sizes. And some of the uses to which this equipment applies are: dewatering, classifying, fractionating, degitting, thickening, and extracting. Screen type centrifuges are built to handle any coarse or granular material, such as cut sponge, ground cork, brewery grains, chemical crystals, fine coal, paper pulp, and sugar. The solid bowl types handle fine slurries, sludges, mining concentrates, pigments, fine chemicals, clays, and non-metallics. The last page of the booklet describes a continuous demulsifier. This unit breaks emulsions quickly, continuously, and automatically. It separates immiscible solutions and solids, concentrates sludges and slurries, reclaims and recovers valuable components. Complete specifications are given. Copies are available.

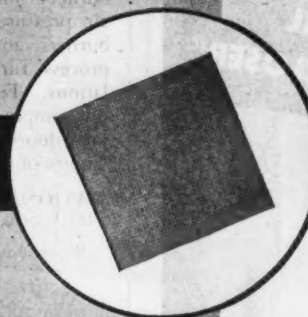
CENTRIFUGE MECHANICAL EQUIPMENT INC., Dept. CP, 95 River St., Hoboken, N.J.

When inquiring specify CP A5053
— see handy form pages 2-3

NEWARK WIRE CLOTH

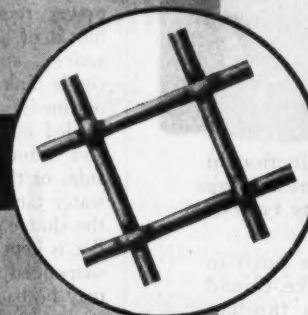
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Best by
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for



FINE POWDERS

Newark—precision manufacturers of Wire Cloth and Wire Cloth Fabricated Products—has a complete selection of wire cloth available! For sifting everything from fine powders to large lumps, we have the proper mesh wire cloth.



LARGE LUMPS

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When inquiring specify CP A5054 — see handy form pages 2-3

Corrosion Resistance & Long Life with Alloy Steel Castings

*Atlas alloy and stainless steel castings are higher in their resistance to acids, corrosion and heat, because the analysis is strictly controlled. Having pioneered many of the revolutionary casting methods used today, Atlas metallurgists are able to cope with all alloy steel casting problems. Your inquiries are invited.

Our Illustrated Bulletin 45 contains 8 pages of helpful data



ATLAS STAINLESS STEEL CASTING

DIVISION

ATLAS FOUNDRY COMPANY

325 LYONS AVENUE

IRVINGTON 11, N. J.

When inquiring specify CP A5050 — see handy form pages 2-3

Take these 2 steps to BETTER PROCESSING



1. Get this new book that explains how modern drying methods increase output and improve quality of products of major industries.

2. Get reliable recommendations of a Ross engineer for improving your processing with equipment designed to make its operation profitable to you.

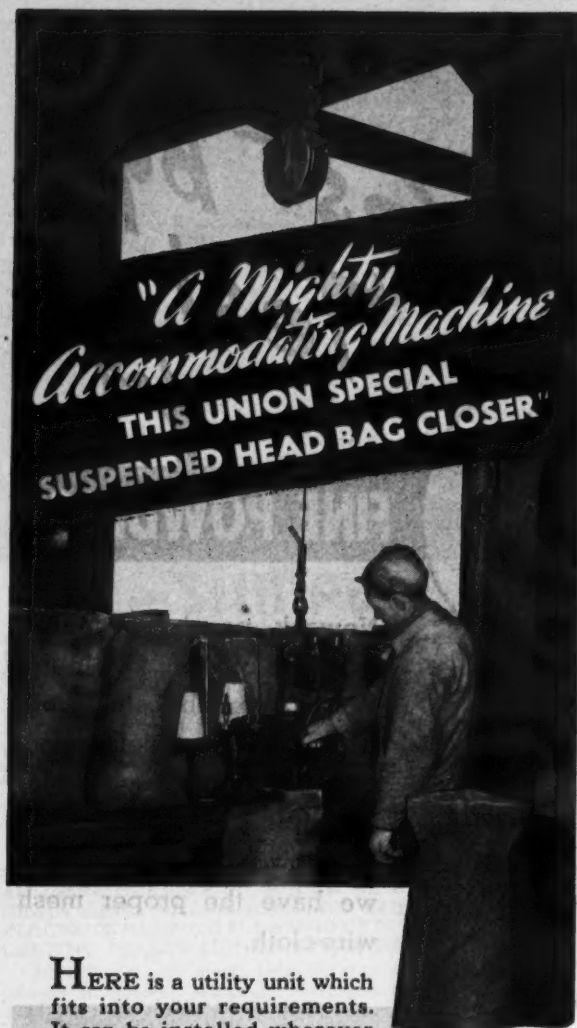
Ross Bulletin No. 131 describes most successful drying method used in each of the major manufacturing industries. Write for your copy. Address our nearest office.

Ross Dryers are individually designed for the particular requirements. The Ross nameplate signifies a "custom made" dryer.

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LONDON - ROSS ENGINEERING COMPANY, LIMITED LONDON, ENGLAND

When inquiring specify CP A5051 — see handy form pages 2-3

JULY-AUGUST, 1946



"A Mighty Accommodating Machine"
THIS UNION SPECIAL
SUSPENDED HEAD BAG CLOSER

HERE is a utility unit which fits into your requirements. It can be installed wherever handy, to take care of regular production in small plants or as stand-by equipment in large plants. It can be used on almost any type of bag, however handled.

The standard unit consists of a built-in motor, thumb-control, automatic brake, thread cutter, thread stand, and either a tandem pulley suspension system or Top Lock Thor Balancer. It comes equipped with a Class 80600 enclosed type sewing head for heavy duty or a Class 14500 for medium to heavy work. Each type of head makes either a chain or a double locked stitch. Write today for full information on all types of bag closers in the New Bulletin No. 200.

UNION SPECIAL MACHINE COMPANY
442 N. Franklin St. • Chicago 10, Illinois

Bag Closing Machines

When inquiring specify CP A5055 — see handy form pages 2-3

Page 86

New Literature

Efficient Heat or Power With Gas-Oil Burners

A well illustrated booklet on gas oil burners for a wide range of applications contains much practical information. The equipment covered is used in glass, refractory and ceramic manufacture, metallurgical, petroleum refining and related industries, and public service companies. Much of the booklet is taken up with the various parts of the equipment and their advantages and uses. Some of the different types of burners on which information is supplied are steam atomizing oil burners, motor driven rotary oil burners, mechanical pressure atomizing oil burners, low air pressure oil burners, gas burners, combination oil-gas burners, and automatic oil burners. The latter for small process furnaces and heating plants, and similar installations. Fuel oil heaters are also offered along with fuel oil pumping and heating units, furnace relief doors, air intake doors, observation ports, and special refractory shapes. Copies of bulletin 746 may be secured by writing.

NATIONAL AIROIL BURNER COMPANY, INC., Dept. CP,
1284 E. Sedgley Ave., Philadelphia 34, Pa.

When inquiring specify CP A5056 — see handy form pages 2-3

★

Clarifying and Softening Water by Upward Sludge Filtration

An eight-page illustrated booklet fully explains the principles and advantages of upward sludge filtration and describes its adaptability to the effective treatment of both industrial and municipal water supplies. Charts, flow diagrams, and cut-away drawings tell the story. Some of the features of the reactor described are an effluent having a turbidity of not more than 5 to 10 parts per million, low power requirement, a minimum of movable parts, removal of a settled dense sludge, improved sludge blanket activity, and a complete treatment plant consisting of a single tank of minimum size. Controls and accessories are outlined. All the necessary treatment operations are included in the installation such as flash mixing, coagulation and sedimentation. Water is caused to flow around the sides of the unit and up through the filter bed into a clear water tank above the bed with provision for removal of the sludge arranged in the bottom of the unit. Only active floc is kept in suspension and it acts as a nucleus, removing suspended, colloidal, or dissolved matter. The booklet may be had by writing.

GRAVER TANK AND MFG. CO., INC., Dept. CP, 332 S. Michigan Ave., Chicago, Ill.

When inquiring specify CP A5057 — see handy form pages 2-3

★

Circulating Fans Cut Refrigeration Costs; Dissipate Odors; Prevent Spoilage

An eight-page bulletin features pertinent information, charts and diagrams concerning refrigeration fans and proper air circulation for refrigerators. Losses through improper circulation as encountered in high power bills, dehydration, spoiled goods are discussed. Particular attention is called to the design of the propellers which blow upward at high velocity. The moving air constantly passing over coils prevents heavy formations of frost and ice. This makes it possible to sometimes omit drip pans. The moving air aids in dissipating odors. Refrigerators which are provided with germicidal lamps employ fans to advantage. These fans slowly move the air in the room past the germ destroying rays of the lamps. The bulletin shows a number of models. One is a rigid

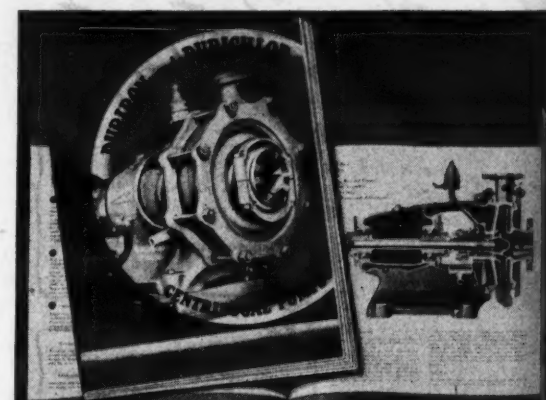
Here's a POWERFUL story FOR INDUSTRIAL POWER PLANTS



All the benefits of "Central Heating" — smoke and soot abatement, reduction of fire hazards, fuel and manpower savings resulting from elimination of individual steam plants, private coal delivery and ash removal — were gained by a Piquette, Ohio, industrial community when the municipal power system made purchased steam available. This book tells the complete story. Write for your copy today.

RIC-WIL INSULATED PIPE CONDUIT SYSTEMS
THE RIC-WIL COMPANY - CLEVELAND, OHIO

When inquiring specify CP A5058 — see handy form pages 2-3



HERE'S THE INSIDE STORY ON HOW TO PUMP ACID

This 12 page bulletin shows you how Duriron or Durichlor corrosion resisting Durcopumps provide a lasting answer to your acid pumping problem.

Features: Little or no stuffing box leakage during operation. Alloys of wide corrosion resistance. Interchangeability of wet end parts to meet changing acid conditions. Heavy duty construction.

A note on your letterhead will bring you a FREE copy of Bulletin 810-2. DC-7

THE DURIRON COMPANY, Inc.
DAYTON 1, OHIO

When inquiring specify CP A5059 — see handy form pages 2-3

CHEMICAL PREVIEW

ceiling type. It blows upwards only and is designed for rooms with low ceilings. Its overall diameter is 22½ inches. A long ceiling type blows upwards, also, but may be adjusted slightly when required. There is also a close-coupled unit which is slightly adjustable. The fans are regularly furnished in 110-115 v. 60 c. units — for AC current but are available in models to meet other requirements. Copies of Bulletin 241 on request.

REYNOLDS ELECTRIC CO., Dept. CP, 2650 West Congress St., Chicago 12, Ill.

When inquiring specify CP A5060 — see handy form pages 2-3

Pumps that Transfer, Meter or Proportion

This bulletin describes a line of pumps that will handle light volatile materials or heavy viscous ones. Pumps have a steady positive displacement and are equipped with a suitable speed reducer, will transfer, meter, or proportion. Have been used in such industries as the food, chemical, drug, petroleum, and machine tool. Other features incorporated in the designs are; maintenance of volumetric efficiency, they automatically compensate for wear, have positive displacement, work on high or low pressure, hydraulically balanced rotors, minimum hazard of seizing or galling, high vacuum, automatic take-up shafts seals, stainless, sanitary and easy to clean. One model pumps 5 to 300 gallons per hour and requires no lubrication. It was tested at 100 psi. and 1740 rpm. for many hours of operation. Highest capacities are from 500 to 4000 gallons per hour. A chart shows horse-power requirements for various pressures and capacities. Other equipment described includes homogenizers, a machine that combines any or all the functions of six conventional special purpose machines into one operating unit, and a small combination machine for the laboratory. Catalog No. 25 may be had by writing.

MARCO CO., INC., Dept. CP, Wilmington 50, Del.

When inquiring specify CP A5061 — see handy form pages 2-3

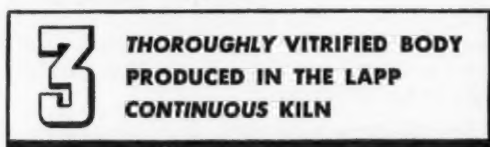
How Moisture Affects Work Value of Glue-Bonded Abrasives

The maximum work value of glue-bonded abrasives is obtained in an atmosphere having a relative humidity of 50%. Also stated in a new bulletin on this subject is the fact that below 25% relative humidity the glue bond is permanently ruined. The booklet then goes on to give facts about the storage of coated abrasives and on charts are shown the effect of moisture on the work value of these types of abrasives. The critical moisture point is defined as 25% and explained. The effect of humidity on flexibility is then covered and it is pointed out that in an ordinary non-humidified shop as the humidity becomes less and less, glue-bonded abrasives lose flexibility. A money saving suggestion is to store the belts, discs, rolls, and sheets in a dehumidified room or cabinet. A word about the hardness of lumber and the effects of moisture and drought is included. Variations in the sandability of materials is mentioned, and six specific complaints are answered in detail. Written requests for the bulletin will be promptly handled.

CLOVER MANUFACTURING CO., Dept. CP, Norwalk, Conn.

When inquiring specify CP A5062 — see handy form pages 2-3

JULY-AUGUST, 1946



● You can fully capitalize on the many trouble-saving and money-saving advantages of ceramics only by getting the most out of ceramic ware. LAPP Chemical Porcelain is different because it offers you all the "natural" advantages of ceramics developed to their highest degree. Complete corrosion-resistance to all acids (except HF), positive non-absorption, added mechanical strength and purity are plus advantages of LAPP Chemical Porcelain. These are made possible by its extra dense, homogenous, thoroughly vitrified body. A vitally-important contribution to that body is made by the LAPP Continuous Kiln. In a 380-foot tunnel kiln temperatures exceeding 2250°F are precisely controlled so that the formed clay is slowly brought to the



Why you can be sure of higher

CORROSION-RESISTANCE,

positive NON-ABSORPTION

with LAPP CHEMICAL PORCELAIN

exact molten stage where complete vitrification occurs. The clay body is transmuted by fusion into solid Porcelain, chemically inert and well beyond the degree of vitrification found in ordinary ceramics or vitreous china.

If you've had trouble with ceramics on a problem that ceramics should solve—it will pay you to experience the difference in LAPP Chemical Porcelain. LAPP Insulator Co., Inc., Chemical Porcelain Division, LeRoy, N. Y.

LABORATORY QUALITY IN PLANT PRODUCTION WITH

Lapp Chemical Porcelain

VALVES • PIPE AND FITTINGS • RASCHIG RINGS • TOWERS • KETTLES • FILTERS • SPECIAL SHAPES

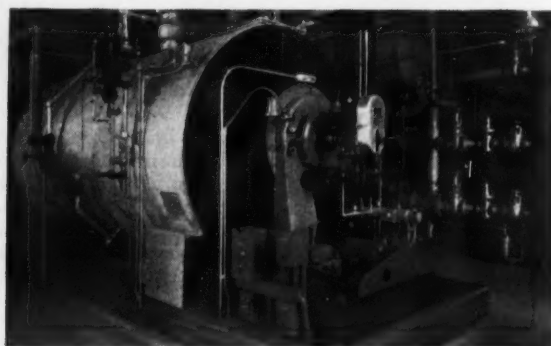
When inquiring specify CP A5063 . . . see information request blank, pgs. 2-3



STEAM costs can eat deeply into profits when steam loads fluctuate—or are intermittent. That's why it pays to have a steam plant designed to meet your steam loads most efficiently.

With a Cleaver-Brooks Steam Generator you are equipped for "roller-coaster" steam loads. Whether the demand is heavy or light—steady or variable—these custom-planned, sturdy, compact steam generators respond instantly and operate at a flat 80% efficiency with full or fluctuating load. A Cleaver-Brooks Steam Generator is thrifty with fuel at all times. Since it need not be "banked" during no load periods it saves this expense. Its low operating and maintenance costs, through the years, are established facts to many owners of Cleaver-Brooks steam generators. It will pay you to investigate—write for complete information.

**CLEAVER-BROOKS COMPANY, 343 E. Keefe Ave.,
Milwaukee 12, Wisconsin**



WRITE on your business letterhead for the Free Steam Cost-Calculator—a ready-reference slide rule showing the comparative steam costs when using oil or coal as fuel.

**Cleaver-Brooks
STEAM
GENERATORS**

When inquiring specify CP A5064—see handy form pages 2-3

New Literature

"Auto-Raise" Thickeners Clarifiers and Combined Air-Mechanical Agitators

Installed mechanisms assist in the process of separating a mixture of liquids and finely divided solids. The solids settle out on the bottom and are discharged and the clarified liquid overflows the rim at the top of the tank. The booklet describes the various features and phases of thickening and clarifying and points out some improvements in equipment offered in this field. The "auto-raise" principle is one of them. As the name implies, this mechanism automatically raises the scrapers away from obstructions or an overload in a tank. This feature should prevent many breakdowns from happening. The booklet is divided into several headings such as scraping mechanisms, structural support, drives, tray thickeners, rectangular clarifiers, tank construction, discharge arrangements acid proofing, power required, metallurgical uses, counter-current decantation, applications, and the selection of sizes. Agitators are treated and the features of both vertical and horizontal types are outlined. Their general design is taken up and uses detailed. Mention is made of their use in gold cyanide mills, where the flow is by gravity from one agitator to the other. Classifiers and separators are touched on briefly. Literature will be sent on request.

HARDINGE COMPANY, INC., Dept. CP, York, Pa.

When inquiring specify CP A5065—see handy form pages 2-3

★

Safety and Relief Valves

Twenty types of safety and relief valves are illustrated and described in a new bulletin which gives most of the essential information to users of this line of equipment. Among the types shown are high pressure, liquid relief, diaphragm relief, naval type, bar-stock relief and safety valve, semi and full venturi safety valve, internal spring and high pressure temperature safety valve.

On the last page of the booklet the company announces a line of Navy type gauges and a hydraulic remote control unit. The hydraulic unit is designed to operate valves, throttles, dampers, etc. The receiving unit can be located as far away as 400 ft. No outside energy source is needed and the unit is claimed to be fireproof. A copy of bulletin No. 40 may be had on request.

FARRIS ENGINEERING COMPANY, Dept. CP, Commercial Avenue, Palisades Park, N.J.

When inquiring specify CP A5066—see handy form pages 2-3

★

"More Profits With Chemistry" Points Out Laboratory Service

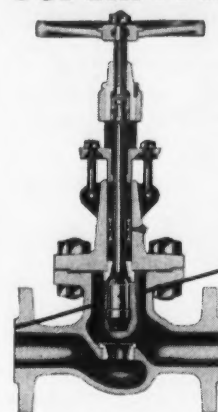
A 20-page informative brochure describes many of the ways in which scientific chemical laboratory services may be applied in the food, pharmaceutical and similar fields. Well illustrated, the booklet shows many photographs of new chemical laboratory equipment and techniques. It outlines the full range of services offered by a well equipped independent laboratory. These include general research and its applications to product formulations, processing and equipment design, by-product utilization, labeling and technical advertising counsel, legal testimony, plant quality control, quality certification and other phases of scientific service. A copy is available on request.

TRUESDAIL LABORATORIES, INC., Dept. CP, 520 W. Adams Ave. 26, Los Angeles 31, Calif.

When inquiring specify CP A5067—see handy form pages 2-3

Install LUDLOW SUPERFLOW MULTI-VALVES

for
**COMPLETE SHUT-OFF
MINIMUM HEAD LOSS and
STRAIGHT LINE THROTTLING**



Scientifically designed Superflow plug and seat, combined with correct streamline body design, gives you all three in this one wonder valve.

Built for extra life, LUDLOW SUPERFLOW Multi-Valves actually improve with use, require no regrounding, provide positive stop and throttle action. SM-11

Let us send you illustrated bulletin giving complete information.

LUDLOW VALVE
MFG. CO. INC. TROY · N. Y.

When inquiring specify CP A5068—see handy form pages 2-3



VAPOR ADSORPTION

by Edward Ledoux

Here is a boon to engineers looking for a clear understanding and methods of applications of adsorption phenomena to industrial projects. All adsorption problems are treated with great thoroughness and lucidity.

400 pages Illustrated 1945 \$8.50

COMMERCIAL WAXES

Edited by H. Bennett

Many leading individuals and firms have contributed helpful data and articles to this comprehensive study of all classes of waxes which, in modern times, find extensive use in many industries.

583 pages 1944 \$11.00

METALS AND ALLOYS DICTIONARY

by M. Merlub-Sobel, Ph.D.

Contains over 10,000 useful metallurgical terms as well as the composition, properties, and uses of all the important commercial alloys. Here is a shortcut to a wealth of information on metals and alloys.

238 pages 1944 \$4.50

RUBBER IN ENGINEERING

A Symposium based on research by the Imperial Chemical Industries, Ltd.

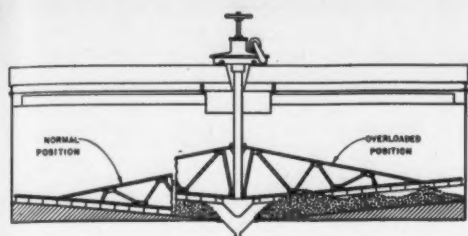
Designed to interest a wide variety of readers. Its main purpose is to furnish engineers with a general survey of the information available on the fundamental properties of rubber. Complete with graphs and tables.

304 pages Illustrated 1946 \$5.50

CHEMICAL PUBLISHING CO., INC.

26 COURT STREET DEPT. 7A BROOKLYN 2, N. Y.

When inquiring specify CP A5069—see handy form pages 2-3



The "Auto-Raise" Drive..

GREATEST DEVELOPMENT IN THICKENERS

DURING THE LAST 20 YEARS

The very slow motion and unknown stresses developed at the bottom of a Thickener tank make the **Auto-Raise Drive** mechanism — an exclusive Hardinge development — the soundest method for lifting scrapers clear of obstructions and overloads, thereby assuring continuous operation.

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NEW YORK 17—122 E. 42nd St. • 205 W. Wacker Drive—CHICAGO 4
SAN FRANCISCO 5—501 Howard St. • 200 Bay St.—TORONTO 1

When inquiring specify CP A5070 — see handy form pages 2-3

An L-B LIQUID VIBRATING SCREEN Increased Separating Efficiency



200%

In the Plant of the
American Felt Co.

A Link-Belt Liquid Vibrating Screen shown here in The American Felt Company's plant, Glenville, Connecticut, increased efficiency in the removal of waste solids 200% over a previous method of removal.

Whatever your problem in separating liquids and solids, discover what Link-Belt Vibrating Screens can do for you in your plant. Removal of unwanted solids — recovery of solids for conversion into profitable products — dewatering of foods and chemicals — all these are being done by Link-Belt Liquid Vibrating Screens, faster and with reduced waste of materials. L-B Screens are available in a number of standard sizes and can be built with corrosion resisting metals when desired. Write for Book No. 1977 today.



LINK-BELT COMPANY
2045 West Hunting Park Ave., Philadelphia 40
Offices in principal cities 10,253

LINK-BELT Vibrating SCREENS

When inquiring specify CP A5071 — see handy form pages 2-3

JULY-AUGUST, 1946

New Literature

Expansion Valve Limits Evaporator Pressure

An improvement in thermostatic expansion valves is pointed out in this four-page bulletin. The unit made at present for smaller refrigeration units, and covering a nominal range of Freon-12 of 1/4 to 1 1/2 tons, provides for an automatic limitation of evaporator or suction pressure. This eliminates the heavy overload on the motor during the starting or "pull-down" period. In addition to the reduction of general strain and wear on the system, and less likelihood of burned out motors, in many cases smaller and less expensive condensing equipment can be installed. The heart of the valve is a small assembly known as the pressure limiting "cartridge". It consists of a pressure-charged bellows, a valve push-pin, and a spring, and partially takes the place of the cage assembly in the more conventional type. A selection of cartridges, each charged to a predetermined pressure, such as 10, 15, 30, 45, or 55 lbs. per square inch, are interchangeable on the job. Complete details on the new THERMO-LIMIT valve are given in Alco's Bulletin 152.

ALCO VALVE CO., Dept. CP, 865 Kingsland Ave., St. Louis 5, Mo.

When inquiring specify CP A5072
— see handy form pages 2-3

★

Selenium Rectifiers Handle Wide Range of Wattages from 150 Ma, 12 V. to 1000 Amp., 6 V.

Parallel, series and series-parallel connection of rectifier stacks give the arrangement necessary to supply loads at any output voltage desired in the capacity range above or beyond. Some of the merits of this type of rectification as set forth in a recent release are ready adaptability to all commercial power circuits and D.C. loads of all wattages, high efficiency over wide ranges of load, high power factor, good voltage regulation, high current overload with safety, small back leak, low percentage of A.C. ripple in the D.C. output, absence of moving parts, and zero maintenance expense. Selenium rectifiers are used on any A.C. source up to 1000 cycles per second. Conventional rectifier circuits are taken up and their characteristics explained with diagrams. Tables and a bibliography complete this book. Copies may be had on request.

FEDERAL TELEPHONE AND RADIO CORP., Dept. CP, 591 Broad St., Newark 1, N. J.

When inquiring specify CP A5073
— see handy form pages 2-3

Comfort moves in...



• Blown by air through a rubber hose, tiny granules of insulation seek out every nook and corner of walls and roof, to bar out winter's cold and summer's heat. Truly, comfort moves in on a stream of air.

For many homes, this air comes from Roots-Connersville blowers, mounted on the insulation trucks. Compact, about the size of one filing drawer, this little blower goes about its work quickly, smoothly, efficiently, to complete the job profitably.

Conveying materials pneumatically is a day-by-day job of R-C blowers. They move bulk and granular substances, such as grain, cotton seed and soda ash. Gases and liquids are distributed and measured by R-C blowers, pumps and meters. They're found in such widely varying work as:

Exhausting coke oven gas	Railroad tie tamping
Airplane wind tunnel testing	Manufacturing explosives
Liquid agitation and aeration	Water distillation
Copper smelting and converting	Unloading tank cars and trucks

Their long record of successful performance comes from the dual-ability of R-C engineers to design and build blowers for any specific need. When you have a job of moving air, gas or liquids under moderate pressures, consult us without obligation.

ROOTS-CONNERSVILLE BLOWER CORP.
One of the Dresser Industries
607 Richland Ave., Connersville, Indiana



Whether the work is done by a small blower like this, or one of our big specially designed units, you can be sure of results with R-C equipment.

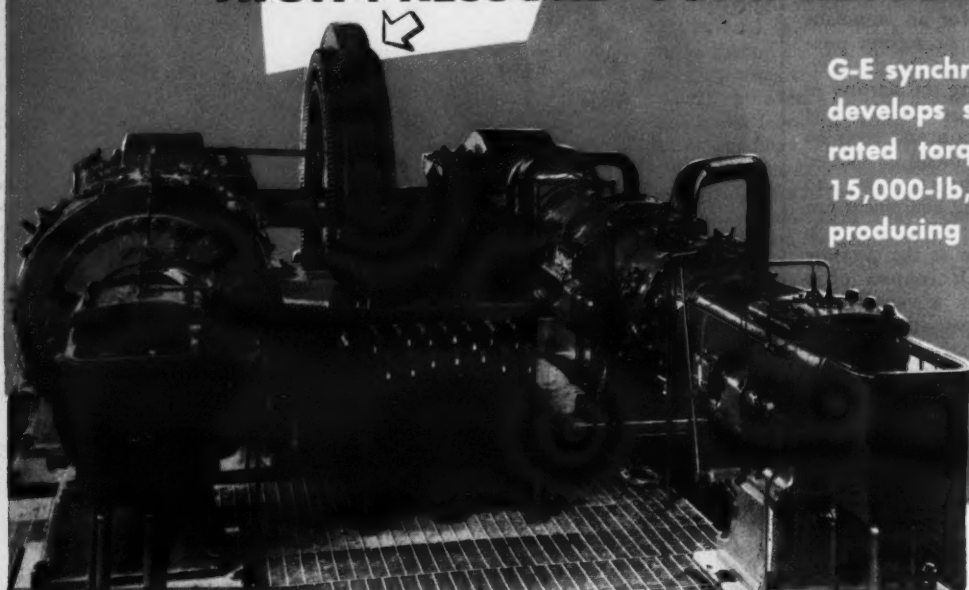


ROTARY POSITIVE AND CENTRIFUGAL BLOWERS • EXHAUSTERS • BOOSTERS
LIQUID AND VACUUM PUMPS • METERS • INERT GAS GENERATORS

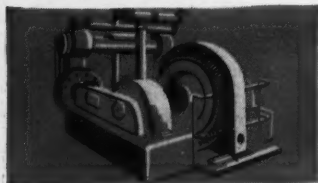
When inquiring specify CP A5074 — see handy form pages 2-3

"Push" PUTS THE INTO WORLD'S BIGGEST HIGH-PRESSURE COMPRESSOR

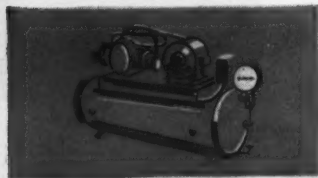
G-E synchronous motor develops smooth, full-rated torque to drive 15,000-lb. ammonia-producing compressor.



G-E Close-Coupled, High-Speed Synchronous Motors



G-E Direct Connected Low-Speed Synchronous Motors



G-E Belt-Connected Tri-Clad Motors

In one of the synthetic ammonia plants of Hercules Powder Company, you will find the biggest, high-pressure compressor ever made. Every minute, the unit takes a boxcarful of nitrogen and hydrogen in and passes it through seven stages of compression. The gas is discharged at 15,000 lbs. per sq. in. — greater than the pressure of ocean water at its deepest level.

As with any continuous chemical process, this compressor is called on to give long, trouble-free service. Frequent outages for repairs would create heavy material and labor losses. Thus, only a drive motor with unusual strength and stamina could be used. G-E synchronous motors meet these stiff requirements for two very good reasons.

First, the motor has been correctly engineered to dovetail with the specific characteristics of the compressor. By providing the proper amount of fly-wheel effect, any pulsations in the reciprocating compressor which might

affect the motor and the power supply line are smoothed out.

Second, G-E synchronous motors are highly efficient. They make possible additional worthwhile power savings through power factor improvement. Direct-connected to the driven machines, they save valuable plant space in addition to eliminating expense and maintenance of mechanical transmission.

For over 50 years, G.E. has been supplying synchronous motor drives for compressors rated from 15 lbs. to 15,000 lbs. Important to the compressor user is the close cooperation that exists between compressor manufacturers and G.E., resulting in complete co-ordination, engineering-wise, between compressor and drive. One sure way to assure yourself of smooth performance and operating continuity from your next compressor is to specify a G-E synchronous motor drive. Apparatus Department, General Electric Company, Schenectady 5, N.Y.

662-22C
GENERAL ELECTRIC

Synchronous Motors

When inquiring specify CP A5075 . . . see information request blank, pgs. 2-3

New Literature

Corrosion Protection by the Cathodic Method

Cathodic protection has been practiced for some time on pipe line installations, and its application to the protection of water tanks is treated in a bulletin just issued. All underwater corrosion is electrochemical in nature and may be corrected along those lines. The equipment described consists of electrodes of stainless steel, electrolyte, aluminum, graphite, or carbon steel according to the requirements of the individual case and a power unit. By means of a suitable voltage supply, direct current is made to flow from the immersed electrodes through the corroding media to the submerged surfaces of the structure that is under protection. The electrodes are positioned and their size governed by the current required to give proper protection. The method protects old as well as new tanks. Its initial cost is about equal to a good interior cleaning and painting job. It is an approved and guaranteed method. Two booklets giving complete information are ready for the asking.

ELECTRO RUST-PROOFING CORP., Dept. CP, Dayton 10, O.

When inquiring specify CP A5076 — see handy form pages 2-3

★

Mercury Vapor Rectifiers for Magnetic Separators and Industrial Use

Information is supplied on new rectifiers that have their tubes mounted outside the main housing and have them protected by a perforated metal grill. This insures good ventilation and relieves arc — backs when under full load. The rectifiers have no moving parts and are in stock for nearly any voltage and current requirement. Described are models for magnetic chucks, variable voltage requirements, and heavy power work. One model is a three phase rectifier used for supplying power to large D. C. motors on grinders, direct geared lathes and other machine tools. Efficiency is as high as 87%. The variable voltage rectifiers are good for laboratory as well as production work. They may be wound for almost any voltage and current requirement. One of the smaller models can be mounted directly onto the machine for which it is intended and operated from the power line. The bulletin is sent on request.

MELLAPHONE CORPORATION, Dept. CP, Rochester 2, N. Y.

When inquiring specify CP A5077 — see handy form pages 2-3

★

Light Weight Portable Flame Hardening Tools

Catalog covers many items of use in flame hardening work from water-cooled torches and tips for treating small parts to complete apparatus for large work. In as much as the equipment is light in weight, it is possible to bring the heat directly to the work with the resultant saving in cost and time. Oxyacetylene flame hardening gives the widest range of application of any known surface hardening process. Parts too bulky for furnace treatment may be treated with facility by flame hardening. Cast and malleable iron may be hardened as may be carbon steels of at least 0.35% C. The catalog contains diagrams showing the proper use of the various types of equipment. Water cooled flame hardening torches, surface hardening tips, gear hardening tips and apparatus, heating torches and tips are discussed. Included is a description of the radiograph which is portable and is used to flame harden flat surfaces and gears. Tips for the hardening of rounds and gas control equipment conclude the catalog. Available on request.

AIR REDUCTION SALES COMPANY, Dept. CP, New York 17, N. Y.

When inquiring specify CP A5078 — see handy form pages 2-3



WEATHERHEAD T RING PACKING

This new product, shown here in an exploded view, solves the problem of sealing fluids in many types of machines employing various pressures. It meets the requirements of both standard and special applications. This T ring packing is available in two types and in sizes ranging from 1/2 inch to 4 inch O.D. For information or literature write or phone any Weatherhead branch office.

Look Ahead with **Weatherhead**
THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO
Branch Offices: New York, Philadelphia, Detroit, Chicago, St. Louis, Los Angeles

When inquiring specify CP A5079 — see handy form pages 2-3

NEW CATALOGS!

FOR STEEL VALVE USERS

These New Edward Catalogs

contain dimensional data, sectional illustrations, design details, materials and many helpful suggestions in steel valve selection and operation. Be sure they are in your file.

CATALOG 12-B Non-Return Valves, globe or angle, flanged or welding ends; 300 to 1500 lb. sp.

CATALOG 12-D Blow-Off Valves, straightway or angle, flanged or welding ends; 300 to 1500 lb. sp.

CATALOG 12-E Gate Valves, Cast steel flanged or welding ends, for service from 150 to 3600 lb.

A request on your company letterhead will bring the catalogs you desire.

THE EDWARD VALVE & MFG. CO., INC.
1230 WEST 144TH STREET
EAST CHICAGO, INDIANA

Edward Valves
Forged Steel & Cast Steel

When inquiring specify CP A5080 — see handy form pages 2-3

New Literature

Stabilized Degreasing Solvent and Custom-Made Degreasers

Providing a higher margin of safety for adverse operating conditions than before and especially suited to the cleaning of aluminum, and die castings, a new degreasing solvent is announced. This solvent and others are described in a bulletin along with degreasing equipment, washers, alkali cleaning and stripping compounds, and process equipment. The degreasers described are varied and meet most cleaning needs. Many pictures are included to show special uses. Technical service is available to analyze metal cleaning needs. Most installations are custom-designed. There are vapor, immersion, spray, and other types of degreasers treated in the booklet. Processing equipment is available for cleaning and rust proofing prior to finishing, for aluminum processing, and combination cleaning. The aluminum machine incorporates hot alkali wash, hot water rinse, hot chromic acid dip, and overhead oven dry-off. Written request will bring this bulletin.

DETREX CORP., Dept. CP, 14331 Woodrow Wilson, Detroit 3, Mich.

When inquiring specify CP A5081 — see handy form pages 2-3

★

Hot Water Storage Heaters and Preheaters

Various types of heaters and preheaters are covered in detail in this booklet. Cut-away drawings and diagrams are shown and tables of dimensions, capacities and weights, pipe locations, steam pressures, and water consumptions are included. Storage and service heaters are described along with preheaters or condensate coolers. Storage heaters of special metals are covered such as models with copper-silicon shells. The alloy used contains 96% copper. Also solid copper shells are available. Seams are electrically carbon arc welded. Heaters are listed in which the service water is heated by hot water from below the water line of the boiler instead of by steam. The advantages of this type are lower cost of installation and maintenance, no additional excavation necessary, and no automatic temperature regulator or steam traps required. Instantaneous heaters are particularly adapted to constant steam supply services. These are built in two pass and multi-pass designs. Other equipment such as autoclaves, converters, and freon coolers are listed in concluding the booklet which may be had by writing.

THE PATTERSON-KELLY CO. INC., Dept. CP, 101 Park Ave., New York 17, N. Y.

When inquiring specify CP A5082 — see handy form pages 2-3

★

Vertical Fire Tube Boilers Capacity from 3 to 110 Hp

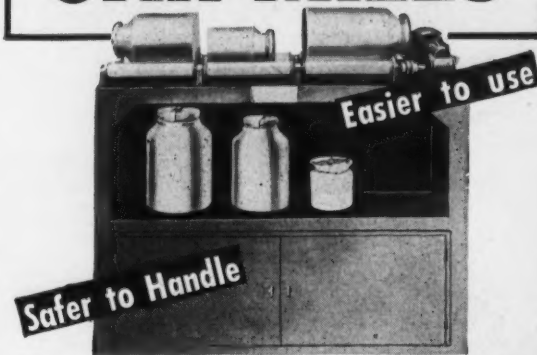
Both manually and mechanically fired boilers are described in a booklet covering their construction features and specifications. Used for steam generation in manufacturing, processing plants and on construction jobs. These units are particularly recommended where space limitations portability and cost are prime considerations.

The boilers are available either as "full length" or "submerged" types. The submerged units offer the greater efficiency because they have their tubes completely surrounded by water. Additional equipment other than standard to meet special requirements is available at extra cost. The booklet concludes with a list of other products of the company such as heat exchangers, stokers and the like. Bulletin B-3 available on request.

THE BROWNELL COMPANY, Dept. CP, Dayton 1, Ohio.

When inquiring specify CP A5083 — see handy form pages 2-3

"Roller-type" JAR MILLS



"U. S." roller-type Jar Mills are tops for low cost grinding or mixing. No clamping into frames. Set the jar on the rubber rollers — and let it roll. Standard sizes will accommodate one, two, three or four, 1, 1 1/2, or 2 gallon size jars. Revolving speed about 50 RPM. Illustration shows Fig. 296-C, Cabinet style Jar Mill. Write for catalog 256.

U. S. STONWARE

Process Equipment Division
AKRON 9, OHIO

When inquiring specify CP A5084 — see handy form pages 2-3

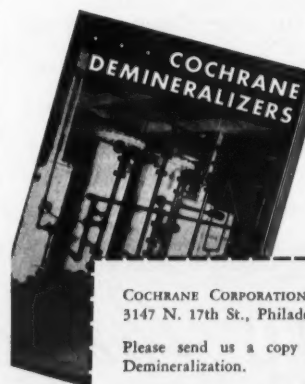
DISTILLED WATER

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COCHRANE DEMINEALIZED WATER

For Commercial Purposes, They Are
... Identical in Purity ...

Yet Demineralized Water can be produced at a fraction of the cost of distilled water by the use of Cochrane equipment. This new process is of vital importance to manufacturers of pharmaceuticals, beverages, food and other process manufactured products. Write today for details.



COCHRANE CORPORATION
3147 N. 17th St., Philadelphia 32, Pa.

Please send us a copy of your Publication No. 4181 on Demineralization.

Name Title

Firm

Address

City State

When inquiring specify CP A5085 — see handy form pages 2-3

FOR PRECISION CONTINUOUS BLENDING OF FLUIDS



Wilson **PULSAFEEDER** *Chemical Proportioning Pumps*

No need to stop the system, or the pump, for adjustment, minor or major, of rate of flow with the Wilson Pulsafeeder. Hand wheel provides micrometer adjustment of rate—from zero to full maximum. Models available for feeding up to 800 gallons per hour. Hydraulically-balanced diaphragm head isolates pump from fluid being

handled, protects fluids from contamination. Box construction provides oil-bath lubrication for all moving parts except motor, gives positive lubrication to assure low maintenance and long life. Write for description and specifications. Process Equipment Division, Lapp Insulator Co., Inc., 171 Maple Street, LeRoy, N. Y.

Lapp *Process Equipment*

LAPP CHEMICAL PORCELAIN VALVES • PIPE • RASCHIG RINGS...
WILSON PULSAFEEDER CHEMICAL PROPORTIONING PUMPS...

When inquiring specify CP A5086 . . . see information request blank, pgs. 2-3

New Literature

Strainers and Separators Designed for Easy Access Booklet describes and gives dimensions on Y-Type Strainers, T, and large Macomb pipe line Strainers for oil or water service. Also information on horizontal and vertical and receiver separators. Cleaning is an easy problem as screens and baskets may be reached with facility for removing foreign matter. The equipment is available in several metals to combat corrosion problems. Bodies are furnished in semi-steel, steel or bronze as service conditions may require.

Some of the features of the Y type strainer are large screen surface and dirt pocket, they are self cleaning through a bottom blow-off, they can be installed in either horizontal or vertical lines, a cadmium plated body if desired at slight increase in price, and a tapered fitting to hold the screen and by-pass foreign matter at both ends.

The booklet is complete with pictures, diagrams and tables. Bulletin No. 46-50 is available on request.

AMERICAN DISTRICT STEAM COMPANY, Dept. CP, North Tonawanda, N.Y.

When inquiring specify CP A5087 — see handy form pages 2-3

★

Flexible Gear Turrets Form Any Angle From 0-95° on Either Side of 0 Angle

A recent booklet gives many features of a line of flexible gear turrets and miter gear boxes. One of them is an arrangement which permits the shafts to oscillate and rotate simultaneously. The turrets are designed for connecting shafts to form any angle between 0 and 95°. Horsepower capacities are based on the Lewis Formula. The trend towards the use of flexible equipment in the last five years has been rather strong and as a result of this the booklet just released should be of use. It is written with the engineer and designer very much in mind and consists in the main of good drawings and pictures. This was done so that the products described could be specified on the blue prints currently drawn.

The miter gear boxes shown are designed for standardization, economy, and ease of installation. Oil seal and plain types are offered. A copy may be had on request.

BROOKS EQUIPMENT CORPORATION, Dept. CP, 217 Hudson St., Hoboken, N. J.

When inquiring specify CP A5088 — see handy form pages 2-3

★

Simple Devices for Handling Corrosive Liquids

Three types of corrosion-resistant acid elevators are treated in a bulletin recently released. Diagrams, dimensions, special designs, suggested applications, and parts lists are given. Simplicity of design, ease of maintenance, and low consumption of compressed air are the main features of the equipment. Both manual and automatic types are offered. The manual type is used for transporting acid from carboys, and in other operations where there is a relatively small amount of liquid to be moved periodically. Special designs of this type are also available. The automatic elevator is used where it is advisable to eliminate manual control and where it is possible to provide a positive feed. In addition to the stoneware elevators outlined, the company also has information on an improved tower packing. The new rings offer better flow characteristics than heretofore. A written request will bring complete information.

GENERAL CERAMICS AND STEATITE CORP., Dept. CP, Keasbey, N. J.

When inquiring specify CP A5089 — see handy form pages 2-3

CHEMICAL PREVIEW

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Fundamentals of Fluid Flow

On this subject of perennial interest is offered another contribution. This particular one deals not only with simple pipes and ducts but also treats conditions of internal roughness and systems involving connections and valves of all kinds. Each year new fittings are applied and studied, and this makes the subject an active one. The first section deals with the fundamentals of fluid flow and contains discussions on: fluid properties and flow, velocity distribution, types of flow, dimensional analysis, wall effect, and friction in pipes. Section two presents the applications of fluid flow theory. It is divided into 14 sections dealing with: flow of gases and steam, loss in rectangular ducts, Bernouilli's Theorem, enlargements and contractions, entrance losses, orifice losses, abrupt contraction, valves, bends, tees, heat losses, demand and design, and a typical example. Drawings and graphs are supplemented by the required equations. The booklet is available at \$1.00 per copy. Remittances should be mailed directly to the company mentioned below. Written by J. M. Dalla Valle.

HEATING AND VENTILATING, Dept. CP, 148 Lafayette St., New York, N. Y.

When inquiring specify CP A5090 — see handy form pages 2-3

*

Booklet Has Refrigeration Data

A 32-page bulletin describes refrigerating, ice making and air conditioning equipment. Of special interest is a section devoted to the principles of refrigeration which is informative. Other sections describe constructional features, ice making systems, air conditioning systems, refrigerated food lockers, quick freezing systems and low temperature booster systems. Also discussed in detail are low pressure refrigerating units, compressors for Freon F-12, combined ammonia units, enclosed ammonia compressors, large four-cylinder compressors, condensers, coolers, coils, control equipment, valves and fittings. It contains over 150 photographs, diagrams and tables. Refrigeration tables contain properties of saturated ammonia and saturated freon. Copies of bulletin 80-B are available on request.

FRICK CO., Dept. CP, Waynesboro, Penna.

When inquiring specify CP A5091 — see handy form pages 2-3

*

New Improvements in Heavy Metals Handling and Shearing Equipment

New shearing equipment is described for steel plate that simplifies adjustments. The back gauge is mounted on ball-bearings. The shear may be set to cut plate of any thickness without loosening the bed or adjusting a series of bolts. A lift-up back gauge is also featured which allows long sheets to pass through by being raised. Knives have four cutting edges and are of heavy rectangular cross-section. Several on the job examples are given of the handling equipment offered in pictorial fashion. Tramrails and heavy cranes are shown on several important jobs ranging from steel, to copper works. Important changes in handling procedure are pointed out in several instances.

CLEVELAND CRANE AND ENGINEERING COMPANY, Dept. CP, 1129 E. 283rd St., Wickliffe, Ohio.

When inquiring specify CP A5092 — see handy form pages 2-3

JULY-AUGUST, 1946

Here is

CONTROLLED DIRECT-FIRED HEATING For HIGH TEMPERATURE REACTIONS



Edge Moor High Temperature
Calandria Reaction Vessel

For any chemical reaction that can take place in metal and which requires heating at temperatures higher than that of steam, Edge Moor engineers have developed a direct-fired system. It combines efficient oil heat utilization with the finer control features of the most expensive installations.

The system is composed of but two parts — a separate combustion chamber arranged to supply a uniform amount of heat, and a calandria vessel having an induced draft fan and by-pass system for mixing the furnace

and exhaust gases. Through the use of simple control instruments a constant volume of gas at any predetermined temperature is drawn through the vessel to give a highly uniform heat transfer rate and economical use of the heat from the oil.

We solicit any production problems involving reactions, evaporation, heating, cooling, or any of their combinations. Edge Moor engineers are prepared to discuss the application of calandria vessel systems for their solution. For preliminary information write for descriptive literature.



Process Equipment Fabricators

EDGE MOOR IRON WORKS, INC.

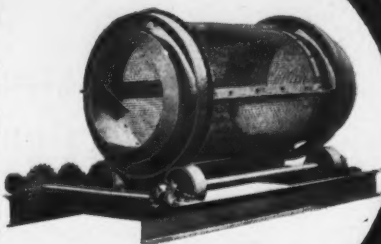
EDGE MOOR DELAWARE

BRANCH OFFICES: New York 1, N. Y., Empire State Bldg., Chicago 2, Ill., One No. La Salle St.

When inquiring specify CP A5093 . . . see information request blank, pgs. 2-3

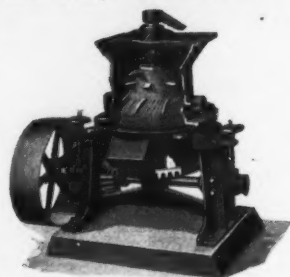
SCREENS

Sizes from 30 to 84 inches in diameter and from 4 to 30 feet screen length. Wire cloth or perforated plate construction . . . single pass, or jacketed to make several separations at the same time—hooded if desired to prevent dust loss. Full details on request.



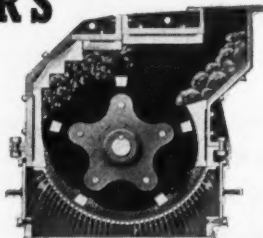
ROTARY CRUSHERS

Ideally used in crushing small quantities of chemicals and minerals of moderate hardness. The material works down between the shell and the revolving cone which is adjustable to crush from 1/4" to 1/2" in size. Complete dimensions and prices furnished on request.



PULVERIZERS

Swing hammer type for reducing limestone, shale, soda ash and similar materials to 10 mesh or coarser. Four standard sizes, all with manganese steel hammers and hardened breaker blocks that insure rapid crushing at low power cost. Send for catalog.



THE C. O. BARTLETT & SNOW CO.

6270 HARVARD AVE. • CLEVELAND 5, OHIO

DRYERS, COOLERS, CALCINERS AND KILNS
BOILER PLANT COAL AND ASH HANDLING SYSTEMS
CONVEYORS, CRUSHERS, FEEDERS, SCREENS

When inquiring specify CP A5094—see handy form pages 2-3

New Literature

Automatic Filling Speeds Packaging of Powdered Materials

Auger packers are described in this folder which shows uses in the field of packaging powdered materials. Illustrations depict methods of operation and the automatic filling device whereby the machine starts filling the container as soon as it is placed in position. The machine handles a wide variety of powdered materials and works equally well with cans, cartons, bags, jars or bottles. Copies of the bulletin available on request.

TRIANGLE PACKAGING MACHINE CO., Dept. CP, 906-924 N. Spaulding Ave., Chicago 15, Ill.

When inquiring specify CP A5095
—see handy form pages 2-3

Refrigeration Control Devices

Refrigeration control devices for low temperature, commercial refrigeration and air conditioning systems are described in this 12-page catalog. Constructional features of automatic expansion valves, thermostatic valves, water regulating valves, suction pressure regulating valves, solenoid refrigerant valves, refrigerant driers and traps are discussed. Other sections of the catalog show recommended uses for various refrigerants, commercial tonnage capacities and other data. Bulletin "Dependable Refrigeration Valves" available on request.

AUTOMATIC PRODUCTS CO., Dept. CP, 2450 N. 32nd St., Milwaukee 10, Wisc.

When inquiring specify CP A5096
—see handy form pages 2-3

Furnace Wall Life Lengthened by Coating in the Range 1200° F. to 3000° F.

Protection is assured for fire brick by a coating which fuses in the presence of operating furnace heat. A recent bulletin states that the new product may be applied like paint and that one gallon will cover 30 to 35 feet. The furnace should be fired immediately after application, and may be operated at once at normal temperatures. The coating is of a different chemical composition than the refractory, and provides no foothold for slag formation. It improves combustion, prevents shutdowns, and cuts maintenance costs. Several grades are available and they may be used in furnaces burning any fuel. Other products are described for eliminating slag, sludge, and cleaning fuel oil preheaters. The bulletin will be sent on request.

GAMLEN CHEMICAL CO., Dept. CP, 1469 Spring Garden Avenue, Pittsburgh 12, Pa.

When inquiring specify CP A5097
—see handy form pages 2-3

Uniform Separation

FOOD PRODUCTS — CHEMICALS — METALLICS
NON-METALLIC MINERALS

The new model GAYCO Centrifugal air separator makes possible the uniform and increased recovery of fine material within a range of 40 to 400 mesh.

- Greater Capacity
- Cleaner Trailings
- 99% Through 325 Mesh
- 25% to 30% greater recovery of fines
- Not affected by variation in speed or rate of feed



The Gayco Separator Handles

SUCH PRODUCTS AS

BAGASSE	GROUND HAIR
CASEIN	GROUND OATS
COCOA POWDER	GUM ARABIC
COTTONSEED	SOY FLOUR
MEAL	SPICES
FERTILIZER	SUGAR

Universal Road Machinery Co.

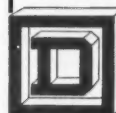
RUBERT M. GAY DIVISION 117 Liberty St. New York 6, N. Y.
Canadian Representative: F. H. Hopkins & Co., Ltd., Montreal
FACTORY & LABORATORY, KINGSTON, N. Y.

When inquiring specify CP A5098—see handy form pages 2-3



PRESSURE, FLOAT & VACUUM SWITCHES

• SQUARE D offers a wide range of switches, designed and built for practically all sizes of water pumps, condensate pumps, vacuum pumps, and air compressors. You'll find this catalog a valuable source of reference. Send for your free copy today. Address Regulator Division, Square D Company, 6060 Rivard St., Detroit 11, Mich.



SQUARE D COMPANY

DETROIT • MILWAUKEE • LOS ANGELES

When inquiring specify CP A5099—see handy form pages 2-3

CHEMICAL PREVIEW

Resurfacing For Wet and Food Plant Floors

A resurfacing material is covered in a bulletin that tells how it may be used to lick particular floor cleaning and breakdown problems in several industries. Especially formulated to stop breakdowns where excessive water, oils, greases, fats, and fruit and vegetable acids have to be handled. It trowels to a smooth, dustless, tough wearing surface and may be used for patching purposes. Shipped in powdered form, only water need be added to apply. Complete directions are given in the bulletin for its use. It has been tested under the wettest and greasiest conditions that are likely to be met in the field. Laundries, breweries, packing houses, dairies, and similar industries will find this product of special interest. Other products mentioned in the booklet are a concrete hardener and dust proofer, a sealing compound for hydrostatic pressure leaks through underground walls, a paint for oil-covered surfaces, and caulking compounds. A request will bring full information.

ROCK-TRED CORPORATION, Dept. CP, 629 West Washington Street, Chicago 6, Illinois.

When inquiring specify CP A5100 — see handy form pages 2-3

Doorways of Steel and Wood

Rolling doors have advantages proved by many years of service in all classes of buildings. Nine major requirements are met by the doors covered in a release that resembles a handbook. They provide fast, easy operation, space saving, durability, fire protection, maximum safety, weather protection, good appearance, burglar protection, and economical installation. The types offered include rolling service doors, fire and overhead doors, bifolding doors, rolling metal grilles, and special type doors. Complete door service in the form of engineering field study is outlined, and its meaning to the architect, contractor and owner is made clear. Pictures, drawings, and many specification charts feature the book. Types of installations and clearances and operating methods are treated in detail. Doors described to solve unusual problems are of particular interest. Anyone having opening problems will want this booklet which is freely available.

KINNEAR MANUFACTURING COMPANY, Dept. CP, 820-870 Fields Ave., Columbus 16, Ohio.

When inquiring specify CP A5101 — see handy form pages 2-3

"All-Vision" Industrial Gas Masks

A four page bulletin covers industrial gas masks in a comprehensive fashion and lists several improvements. Some are; inbuilt fogproof construction, specially-contoured lenses of a shatterproof glass that are interchangeable and replaceable, and a gas tight fit without "pressure points". A speaking diaphragm provides communication between men over the telephone or through speaking tubes. New processes and gases and combinations of gases are enlarging the field in which gaseous hazards are encountered. High pressure leaks present conditions that are difficult to guard against. Lost efficiency and time together with compensation costs have to be met in many cases. Industrial progress is studied and new gas hazards are met promptly. A large number of canisters are prepared and held ready for protection against many different gases. The booklet lists them and is sent on request.

MINE SAFETY APPLIANCES CO., Dept. CP, Braddock, Thomas and Meade Sts., Pittsburgh 8, Pa.

When inquiring specify CP A5102 — see handy form pages 2-3

This fact has a definite reason behind it

**Your GATES VULCO ROPES
Are Today Making Performance Records
NEVER EQUALED by ANY V-Belts Before!**

No V-Belts built by *anyone* before the war had anywhere near the strength and durability that was found necessary on U. S. Army tanks, tractors and self-propelled big guns during the war. Gates developed these greatly superior V-belts for Army use—and here is why this fact is important to industrial users of V-belts: —

Here is the reason

Every improvement developed by Gates for U. S. Combat Units—and many later improvements, also—have been added, day by day, to the quality of the Standard Gates Vulco Ropes which have been delivered to you.

That is why, *long before the war was over*, you were getting in your Standard Gates Vulco Ropes a product built to far higher service standards than any V-belts ever built by anyone before the war.

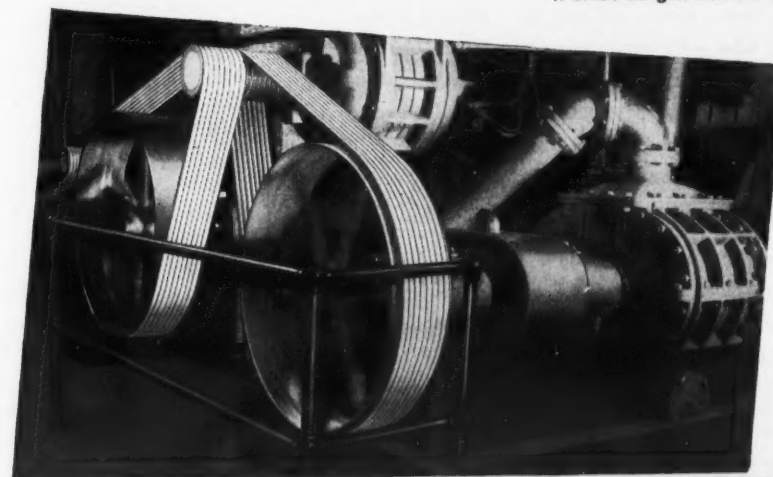
And that is not all of the story. Through continuing *specialized* research, the service qualities of these superior Gates Vulco Ropes have been still further improved as all of Gates facilities and energies have been returned to the service of industry.

These are the simple reasons why you are finding that your Gates Vulco Ropes are today outperforming any V-Belts you ever used before.

**THE GATES RUBBER COMPANY
DENVER, U. S. A.**

World's Largest Makers of V-Belts

All Gates
V-Belts are
Built With
The Patented



GATES VULCO ROPE DRIVES

Engineering Offices
and Jobber Stocks

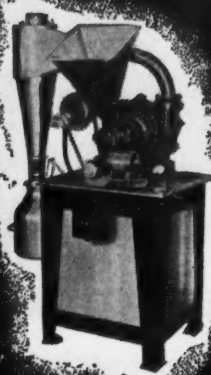
IN ALL INDUSTRIAL CENTERS of the U. S. and 71 Foreign Countries

When inquiring specify CP A5103 . . . see information request blank, pgs. 2-3

WHAT WILL ULTRAFINE GRINDING

DO
FOR
YOUR
PRODUCTS?

NEW No. 5
MIKRO-ATOMIZER



Have you ever wondered how much smoother, how much improved, your product might be, if ground finer than you ever pulverized it before? Others have had that experience and found it opened the way to new product and marketing possibilities.

With the development of the new No. 5 MIKRO-ATOMIZER, you can now investigate right in your own pilot plant or laboratory all the advantages of ultra-fine grinding in the 1 to 25 micron range (under 325 mesh). With a purchase of this new mill you can secure results not previously obtainable in a mechanical pulverizer.

Engineered on an entirely new grinding principle, and with capacities from 10 to 200 lbs. per hour, this new machine is ideally suited for small quantity production, pilot plant and laboratory work—before assuming large scale manufacturing schedules on larger sizes of MIKRO-ATOMIZERS.

Investigate and learn how the new MIKRO-ATOMIZERS can greatly improve your results on ultra-fine pulverizing jobs. Write today for your copy of new Advance Bulletin.

PULVERIZING MACHINERY COMPANY
60 CHATHAM ROAD • SUMMIT, N. J.
NOW... 2 TYPES TO MEET MOST PULVERIZING NEEDS

MIKRO-PULVERIZER
MIKRO-ATOMIZER
Reg. U. S. Pat. Off.

When inquiring specify CP A5104 — see handy form pages 2-3

Equipment for Production

Small Motor Develops 2 HP

Explosion Proof Design — 9000 RPM-unit weighs 15 pounds — for continuous duty



Explosion proof motor develops two horse power

Uses — Motor is designed for continuous duty for special industrial applications. Enclosure makes the motor safe for use in hazardous locations. Suitable for driving fans, blowers, pumps and other drives.

Features — Compact design permits the motor to be used in an extremely small space.

Description — This 2 horse power explosion proof motor weighs only 15 pounds. Armature speed is 9000 RPM and the motor can be supplied for any output-shaft speed. An integrally built speed reducer, supplied where lower speeds are required, adds only 2 pounds to the basic weight of 15 pounds. Ball bearings are standard and the motor is completely insulated with the latest type glass insulation and high temperature varnish. It can be operated continuously with a temperature of 25° C. It is available for operation on 28, 32, or 110 volts D.C. Further information will be supplied on request.

ELECTRICAL ENGINEERING & MFG. CORP., Dept. CP, 4606 W. Jefferson Blvd., Los Angeles, Calif.

When inquiring specify CP A5105 — see handy form pages 2-3

★

Refiner Leaf Type Filter Clarifies and Polishes

At low pressure drops, liquids having specific gravity of 1, flow at rate of 1 to 1.5 g.p.m. per sq. ft. of filtering surface

Uses — Designed for extremely fine filtration and for the removal of both emulsified and free oil from condensate, down to .01 parts per million. May be used as a polishing filter for water and condensate, alcoholic and other beverages, acids, alkalis, aromatics, drugs, paints, varnishes, lacquers, soaps, detergents, juices and liquid foods.

Features — Unit is easily cleaned and has large capacity. At low pressure drops liquids having a specific gravity of 1 usually flow through at the rate of 1 to 1.5 g.p.m. per sq. ft. of filtering surface. Tight emulsions in condensate are broken and the equipment will remove all emulsified and free oil from an oil content as high as 90 parts per million down to .01 part per million. No chem-

icals are required for oil removal treatment. No back wash water is used.

Description — This leaf type filter consists essentially of a series of vertical wire screen or cloth filter leaves arranged in parallel on a movable rack, enclosed within a horizontal cylinder having a quick-lock, pressure-tight door, and a mixing tank with two chambers for slurry and filtering material. The cylinder may be built of any metal suitable for the particular condition, or it may be of steel lined with rubber, plastic, or other material. Filtering elements may be of fine metal screens or any suitable natural or synthetic fiber cloth, including glass. Each element consists of two very fine screens with a central intercrimped screen.

Operation — The proper filtering medium is first determined to suit the service conditions, and may be diatomaceous earth, asbestos, or in most cases, a mixture of both in varying percentages. Dispersion of the filtering medium is accomplished in a few minutes in the precoat (mixing) tank. The surface of the filter leaves is then precoated with the desired filter bed by means of recirculation. The filtering medium deposits itself securely on the screen, forming a compact yet porous bed, producing high flow rates and micronic filtration. This preparation of the filter bed requires less than ten minutes. The filter is now ready for production service, and cycles from 4 to 120 hours and more may be obtained without further attention. Upon completion of the filter cycle, the quick-lock door is opened, the leaves are rolled forward hori-

NIAGARA Aero Cooling Does It Better!

And Saves Cooling Water Costs

Close Temperature Control in Cooling Fluids

NIAGARA Aero Heat Exchanger cools liquids or gases to 10° of atmospheric wet bulb temperature and holds to tolerances of 2°F.

Compressed Air After Cooling

Furnishes drier compressed air—eliminates half the moisture allowed by conventional after-cooling methods.

Holding Quenching Baths to Temperature

Heat treaters increase production, improve quality, decrease rejections by using NIAGARA Aero Heat Exchanger to control quenching bath temperatures.

Condensing Refrigerant Gases

NIAGARA Aero-Pass Condenser increases refrigerating plant capacity, saves power. Duo-Pass prevents scaling and clogging of condenser. "Oilout" cleans the oil out of the refrigerating system.

NIAGARA AERO HEAT EXCHANGER is used in liquid cooling in industrial and chemical processes, water jacket cooling, hydraulic fluid, transformer oil, lubricating and cutting oil cooling, vapor and steam condensing.

NIAGARA BLOWER COMPANY

Over 30 Years of Service in Industrial Air Engineering
Dept. CP-76, 6 East 45th St., NEW YORK 17, N. Y.
Field Engineering Offices in Principal Cities

When inquiring specify CP A5106 — see handy form pages 2-3

horizontally from the tank on the movable rack provided, and the spent filter medium is peeled from the surface of the permanent filter leaves. Taking the unit out of service, cleaning, precoating and placing it back into service is accomplished with ordinary unskilled labor within a total elapsed time of one-half hours. Details of the Refiner pressure leaf type filter described above and a standard filter of cartridge construction are contained in a bulletin which is available on request.

THE BLACKBURN-SMITH MFG. CO., INC., Dept. CP, Hoboken, N. J.

When inquiring specify CP A5107—see handy form pages 2-3

3-Way Valve is Non-metallic

Handles viscous and solid carrying fluids; self locking feature assures tight shut off

Uses — Valve is designed to handle all types of fluids including gases, chemicals and liquids. Suitable for use with hydraulic or pneumatic cylinders.

Features — Due to its unrestricted straight flow characteristics, the valve is especially satisfactory for controlling viscous or solid-carrying fluids. Non-metallic construction permits handling of highly corrosive or erosive liquids, or gases.

Description — This three-way valve employs a flexible molded synthetic rubber tube, encased within a bakelite body. Manual operation, by means of an over-center cam, opens and closes the ports at each half turn of the hand-

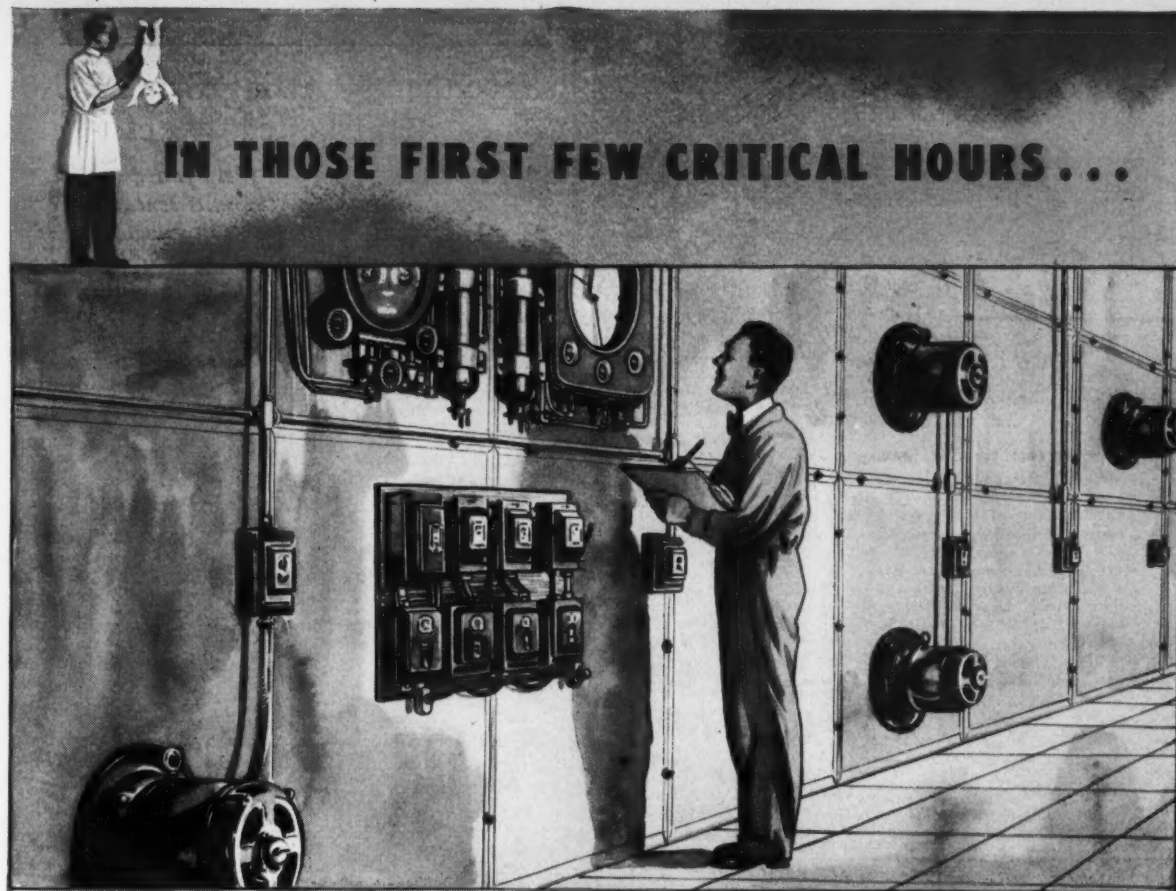


3-way valve for 1/8" and 1/4" I.P.S.

A special self-locking feature assures positive tight shut-off over extended periods of time. Available in 1/8" and 1/4" I.P.S., these new type valves are furnished for working pressures up to 250 lbs. and maximum temperatures of 150° F. Full details available in Bulletin FT-1 on request.

GROVE REGULATOR CO., Dept. CP, 65th & Hollis Sts., Oakland 8, Calif.

When inquiring specify CP A5108—see handy form pages 2-3



IN THOSE FIRST FEW CRITICAL HOURS...

A good doctor knows the importance of his services during the first few critical hours of a new born baby's life. He knows that getting the baby off to a good start adds a great deal to the possibility of a long, healthy life. Proctor engineers take the same attitude with the first few hours of the life of a drying system. It is impossible to place too much emphasis on the first few hours in the life of a piece of equipment as important as a huge dryer. That's why there is a Proctor representative on hand in your plant until the Proctor drying system, just installed, is working perfectly in every detail... meeting every standard laid down in your dryer sales contract. Starting a drying system in operation involves a myriad of details such as properly setting the motors, installing delicate control instruments, making heating element and steam connections, lining up gears and variable speed drives and,

finally, coordinating all phases of the operation to assure proper drying. The performance of your Proctor dryer must be all that you expect and all that we promised—before the Proctor representative's work is finished in your plant. Actually, his work in your plant is never finished—for representatives of the Proctor organization are on call at any time in the life of your drying system to help you make adjustments to changing conditions, to assist you in checking results, to help you with the maintenance of that system. From the day your Proctor drying system is installed—until it is replaced—regardless of how long a period of time that may be—we consider it as much our baby as yours—and we want it to be a healthy baby, so that its performance insures your specifying Proctor equipment the next time.

PROCTOR & SCHWARTZ • INC. • PHILADELPHIA 20 • PA.



When inquiring specify CP A5109 . . . see information request blank, pgs. 2-3



a new approach to office lighting
Specifically designed for eyesight protection, Wakefield's new Over-ALL lighting provides smooth, pleasing, diffused light over all... makes for fewer errors, less eye-strain, more cheerfulness. Based on lighting results where they count. You'll like it. Ask your Wakefield distributor about Over-ALL lighting—or write for new booklet. The F. W. Wakefield Brass Co., Vermilion, Ohio.

It's brand new!
The STAR
Designed to meet your problems. Gives you both fluorescent and indirect light plus simple, sturdy construction, easy maintenance. Ideal for office or drafting room. Ask for details.

The Wakefield Star

Wakefield

LIGHTING EQUIPMENT FOR OFFICE, SCHOOL AND DRAFTING ROOM
When inquiring specify CP A5110—see handy form pages 2-3

Production

Supertherm Heating System Uses Superheated Water

Substantial savings in fuel effected which average 20 to 50%. Permits central and individual temperature control

Uses—High pressure hot water heating lends itself particularly to the manufacture of molded plastics, rubber, textiles, ceramics, floor coverings, wall paper, and chemicals.

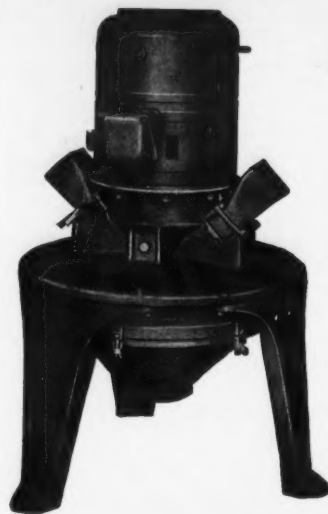
Features—Fuel savings, by the use of the system, are said to run as high as 50%. A completely closed pipe system prevents any loss of steam or water. Standard make boilers may be used without major alterations. System has large accumulation of heat, which overcomes peak loads easily.

Description—The supertherm system consists of drawing water at steam saturation temperature, from any standard industrial boiler, and circulating it through a completely closed pipe system by means of a specially designed pump. Transportation of heat by hot water under high pressure over long distances is effective and simple and does not necessitate excessive pipe diameters. For 6-in. pipe, the loss in temperature is generally less than 3 deg. F. per mile of conduit. Pipe radiation remains practically the same as steam for equal pipe sizes, equal covering, and identical temperatures. Superheated water returns directly to the boiler after giving up the required amount of B.T.U.'s to the heat consumers. No traps, pressure reducers, or separators are used. The mains are welded throughout.

THE "ENTOLETER" SYSTEM GIVES

CONTINUOUS INSECT CONTROL

Your Products Need This Proven Protection Now.



Avoid spoilage from insect infestation... insure the high standards of your products. You destroy all insect life in free flowing, dry materials with "ENTOLETER" Continuous Insect Control. Send now for facts on the low-cost "ENTOLETER" system. ENTOLETER DIVISION, The Safety Car Heating & Lighting Co., Inc., 1185 Dwell Ave., New Haven 6, Connecticut.

ENTOLETER
INFESTATION DESTROYER

CONTINUOUS INSECT CONTROL SYSTEM

When inquiring specify CP A5112—see handy form pages 2-3

10,000 Hours Continuous Running without a Stop!

SEVENTEEN small Dieing Machines were operated by a Chicago plant. Twelve were oiled by hand, shut down every four hours for lubricating. Bearing failures were frequent, each break down causing 8 to 16 hours lost production, plus expense for new bearings and repairs.

Alongside were five Farval equipped machines. They ran continuously, 24 hours a day for 14 months without a shutdown! And the bearings were still perfect. Maintenance costs were slashed. Production boosted.

Now, all machines in this plant—over 200—are Farval-equipped. Farval delivers oil or grease under pressure to a group of bearings from one central station, in exact quantities, as often as desired. Farval—the Dualine System with the Positive Piston Displacement Valve—that has but 2 Moving Parts—is Fully Adjustable—and with a Tell-tale indicator at each bearing to show the job is done.

Savings comparable to the above can be made on your equipment with Farval. Write for Bulletin 25. The Farval Corporation, 3251 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: PEACOCK BROTHERS LIMITED.



FARVAL—Studies in Centralized Lubrication No. 79



CENTRALIZED SYSTEMS OF LUBRICATION

When inquiring specify CP A5113—see handy form pages 2-3

CHEMICAL PREVIEW

KARBATE BRAND

EJECTORS WITHSTAND CORROSION

"KARBATE" PRODUCTS ARE UNAFFECTED BY

Hydrochloric, sulphuric, lactic, acetic, hydrofluoric acids, and by special caustic vapors and other corrosive liquids and gases. They also withstand extreme heat shock.

WHATEVER YOUR PROBLEM—CONSIDER CARBON OR GRAPHITE

The words "National" and "Karbate" are registered Trade-marks of National Carbon Company, Inc.

NATIONAL CARBON COMPANY, INC.

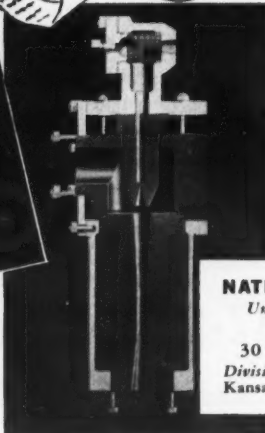
Unit of Union Carbide and Carbon Corporation

UCC

30 East 42nd Street, New York 17, N. Y.
Division Sales Offices: Atlanta, Chicago, Dallas, Kansas City, New York, Pittsburgh, San Francisco



GUESS I'VE GOT TO CROSS 'KARBATE' EJECTORS OFF MY LIST!



• Wherever you work with corrosive solutions—it pays to have your ejectors lined with "Karbate" impervious graphite. For high steam jet velocity, high temperature, and dilute vapor mixtures prevent the formation of a film necessary to protect most metals. On the other hand, "Karbate" impervious graphite is entirely unaffected by corrosion. This chemically inert, non-porous, and lightweight material is immune to most general acid vapors and special caustic vapors.

"Karbate" material is strong mechanically. It has a low coefficient of thermal expansion, high heat conductivity and, thus, high resistance to thermal shock. In fact, "Karbate" impervious graphite will resist heat shock better than any other available material. For details write Dept. CP.

When inquiring specify CP A5111... see information request blank, pgs. 2-3

Production

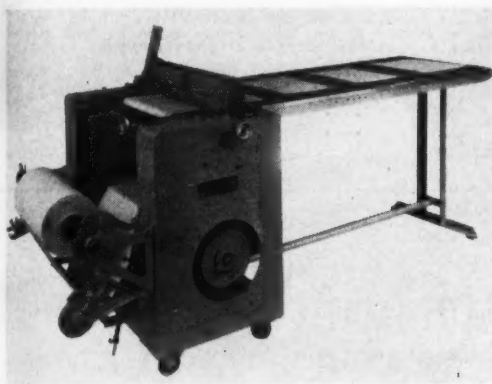
Radiation is the only loss that occurs. There is no need for a hot well, therefore no flash-off losses occur. No make-up water is required; consequently no major scale deposits accumulate. The water level in the boiler remains constant, and water treatment becomes a secondary factor. Every installation is designed to suit the particular requirements of each user in order to obtain maximum results for a minimum capital expenditure. A description of the process and detailed information on various industry applications is contained in a booklet which may be had on request.

BLAW KNOX CO., Dept. CP, Blawnox, Penna.

When inquiring specify CP A5114 — see handy form pages 2-3

Sheeter-Gluer Cuts and Glues Sheets

Speeds wrapping, banding or bundling of items not suitable for machine wrapping



Sheeter-Gluer delivers cut sheets at table height

Uses — Widely used for banding, wrapping, or bundling many items, and irregular or hard-to-wrap packages of many varieties.

Features — Since speed of delivery may be set by means of a variable speed adjustment the machine is an ideal "pace-maker". It speeds wrapping, banding, or bundling of items which cannot be machine wrapped.

Description — Machine glues, cuts, and delivers sheets of cellophane or paper cut from rolls. The pre-glued cut sheets are delivered on a table height conveyor accessible to one or two operators. A heavy welded-steel frame gives the machine stability, yet is mounted on heavy casters so that it can be readily moved when necessary. Driving gears are enclosed in oil in the new power unit. Other major improvements include rotary actuation of the shear type paper cutting knife as well as of the running glue line mechanism. All driving parts are encased within the machine's frame eliminating any outside gears or chains, which might catch the operator's hands or clothing. Entire distance below the sheet conveyor belts is free of obstruction so that operators may sit facing the belts with legs below the belt level. Machine is available in several sizes and can be furnished to pre-seal printed labels or bands to the cut sheets. Details will be sent on request.

MILLER WRAPPING & SEALING MACHINE CO., Dept. CP, 18 South Clinton St., Chicago 6, Ill.

When inquiring specify CP A5115 — see handy form pages 2-3

JULY-AUGUST, 1946



FENCED IN?

Being "fenced in" doesn't necessarily mean operating from behind a steel wire enclosure. To a material handling engineer a restricted choice of equipment can be an equally effective hindrance.

No such limitation "fences in" an S-A engineer as he designs the bulk material handling system for a plant. He has an *unrestricted choice* from a complete line of conveyors and accessories, designed and built by the company that for 45 years has led the field with new units and new methods.

And an S-A engineer has that priceless quality of broad *experience* — enriched by close association with a group of progressive conveyor engineers. No wonder the system he specifies can be depended upon to convey the *right* volume to the *right* place, at the *lowest* cost per ton . . . over the long term.

If you want the man who is never "fenced in" to help you solve your bulk material handling problems, talk to an S-A engineer.



S T E P H E N S - A D A M S O N

11 RIDGEWAY AVENUE, AURORA, ILLINOIS

MFG. CO.

LOS ANGELES, CALIF. • BELLEVILLE, ONT.

Designers and Manufacturers of All Types of

BULK MATERIAL HANDLING EQUIPMENT

When inquiring specify CP A5116 . . . see information request blank, pgs. 2-3

LOOK TO
NETTCO
FOR BETTER

Agitating Equipment



The New England Tank & Tower Co. for over forty years has been a leader in developing high quality agitating equipment,—soundly engineered and ruggedly built. By use of standardized parts and units, NETTCO design provides highly specialized stirring equipment . . . economically . . . in all sizes, types and ratios. Our long experience in developing improved systems of agitation is at your service.

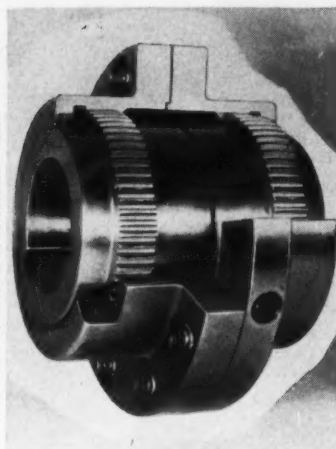
NEW ENGLAND TANK & TOWER CO.
93 TILESTON STREET, EVERETT 49, MASS.

When inquiring specify CP A5117—see handy form pages 2-3

Production

Flexible Coupling Provides Larger Maximum Bore

Compensates for misalignment without adding stress to shaft or bearings



Cutaway view of flexible coupling

identical externally geared hubs that key to shafts, enclosed by one piece male and female sleeves that function as a single rigid unit. The coupling compensates for

Uses — "Series A" coupling is designed for a much larger maximum bore to permit use of a smaller coupling than would ordinarily be required.

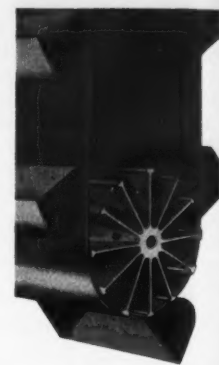
Features — This smaller size coupling requires less space, needs less shaft extension, has better appearance, less maintenance expense and has lower first cost.

Description — Unit is all steel, made to close manufacturing tolerances, dust proof, oil tight,

BELT LIFE INCREASED

50% to 400%

with



SPROUT WALDRON WING PULLEYS

Look at the illustration . . . it shows plainly why Sprout-Waldron's Wing Type Pulley has come to be known as the Belt Saver Pulley. In handling any material on conveyors, almost always some of the material is carried between the face of the pulley and the pulley side of the belt. The wings of the Belt Saver Pulley eliminate the grinding or crushing action which is common with the conventional type pulley, and the life of the belt is greatly extended.

Handling sticky materials presents a problem as they tend to build up on the solid face of a conventional pulley. The design of the Belt Saver Pulley prevents this condition. No wonder Sprout-Waldron Belt Saver Pulleys are a "must" on the tail end of any belt conveyor or on the boot of any bucket and for the handling of sticky materials.

Write today for catalog listing available sizes.

SPROUT WALDRON & CO.

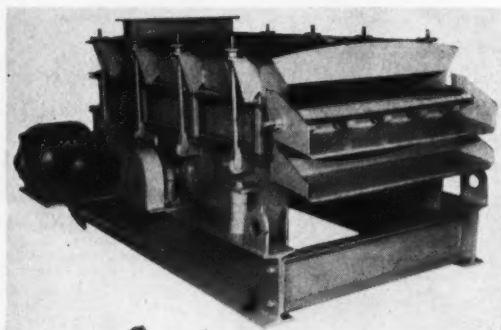
Manufacturing Engineers

MUNCY

PENNSYLVANIA

When inquiring specify CP A5119—see handy form pages 2-3

The 100% Sanitary Screen for Sizing and Dewatering



Single Tray Unit

Easily and quickly dismantled for cleaning and then reassembled. No hidden corners or obstructions. Totally enclosed discharge spouts or open lips as shown. 188 or 316 Stainless Steel construction when required. Available in one, two, three or four screen trays, 2' wide and 4', 6', 8', or 10' long.

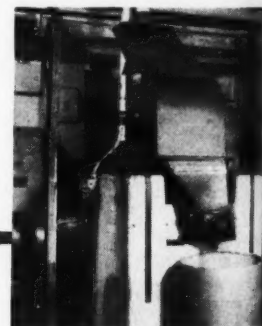
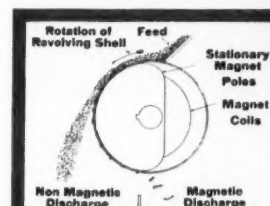
Write
For recommendations covering
your own problems.

SIMPLICITY ENGINEERING COMPANY
DURAND, MICHIGAN

For Canada: Watrous Limited, Brantford, Ontario

When inquiring specify CP A5118 . . . see information request blank, pgs. 2-3

AUTOMATIC TRAMP IRON REMOVAL



Above... A typical Dings Drum-Type Separator installation, removing tramp iron from molding powder. Diagram shows simple, efficient principle of separator operation.

DINGS Drum-Type Magnetic Separator

Tramp iron removal from dry materials is automatic and positive with Dings Drum-Type Magnetic Separators. Large capacity units keep materials moving without interruption. Tramp iron is removed automatically and positively. Installation in chutes, spouts, bin openings, pipes or troughs, or as individual unit is simple. Only operating cost is for small amount of electric current used. Maintenance is negligible over many years of use.

Get details from Dings today

DINGS MAGNETIC SEPARATOR CO.

510 E. SMITH STREET, MILWAUKEE 7, WISCONSIN

"Separation Headquarters Since 1899"



When inquiring specify CP A5120—see handy form pages 2-3

CHEMICAL PREVIEW

Production

misalignment without adding stress to shaft or bearings. Couplings are made in standard, heavy duty, marine, mill motor, floating shaft, jordan, shear pin, oil collector and cut-out types. Catalog 57 contains more information which is available on request.

JOHN WALDRON CORP., Dept. CP, New Brunswick, N. J.

When inquiring specify CP A5121 — see handy form pages 2-3

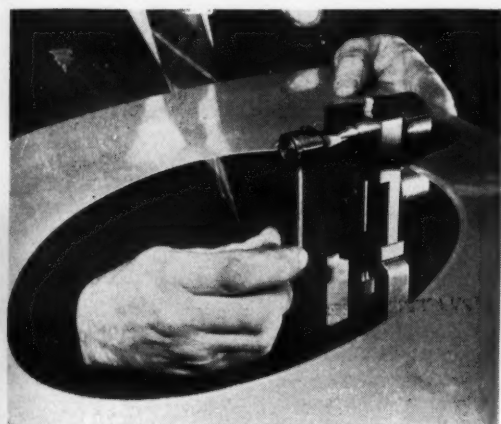
★ Tool Crimps Sheet Metal Up to 16 Gauge

Device is easy to operate — requires little effort

Uses — Crimper may be used at the bench, on the job or after installation. Handles up to 16 gauge metal.

Features — Works equally well on straight edged metal, sheets or pieces curved to shape, on the inside of blanked out holes or wherever crimping on sheet metal may be required.

Description — In its general shape, it is not unlike the familiar can opener attached to the kitchen wall or a tool used by shoemakers to crimp pieces of leather together. Two round dies, one with a projecting edge, the other



Sheet metal crimper

rounded to fit, are held together by spring tension and an adjustable screw to fit them for various thicknesses of metal. Turning a crank pulls the metal sheet between the dies. Held firmly against a guide, the edge of the metal is crimped to the desired shape. But little physical strength is required for the operation, certainly no more than to open a can of food in the kitchen, and the time saved is at least half as compared with any other hand tool which would perform the same job. The tool may be operated by clamping it in a bench vise, probably its most widely used place. By substituting a wheel for the conventional handle (with little sacrifice in leverage) it also can be used right on the piece needing crimping after it has been installed, or a new crimp can be put into a piece of sheet metal without having to completely remove it. Ratchet wheels may be installed in the device so that there is no slipping, because, being small and handling only the thinner sheets of metal, the gears will not unmesh sufficiently to become separated. A request will bring more detailed information.

THE GLENN L. MARTIN CO., Dept. CP, Baltimore 3, Md.

When inquiring specify CP A5122 — see handy form pages 2-3



FROM PLANT TO PIE CRUST... a modern marvel of gas chemistry

American housewives can now make pastry better and more economically than their grandmothers... thanks to the marvel of gas chemistry which transforms raw vegetable oils into the smooth, creamy shortenings which add quality to baked goods and other tasty foods.

The process of hydrogenation which works this miracle hinges upon the use of high purity hydrogen... the delivery of the product to the consumer in a fresh wholesome condition is insured by the use of nitrogen to prevent contact with the atmosphere.

Hydrogen and nitrogen, as produced by Air Reduction, are known for their unvarying uniformity, dependable qualities, and tested purity. They are used with confidence by both the food and drug industries for a wide variety of processing and packaging operations.

For complete information about Airco high purity gases write: Air Reduction, General Offices, 60 East 42nd Street, New York 17, N.Y. In Texas: Magnolia Airco Gas Products Company, General Offices, Houston 1, Texas. Represented Internationally by Airco Export Corporation.



AIR REDUCTION

Offices in All Principal Cities

HEADQUARTERS FOR OXYGEN, ACETYLENE AND OTHER GASES . . . CARBIDE . . . GAS WELDING AND CUTTING APPARATUS AND SUPPLIES
. . . ARC WELDERS, ELECTRODES AND ACCESSORIES

When inquiring specify CP A5123 . . . see information request blank, pgs. 2-3



NIAGARA PERMAFLUX spout type magnets are built of Alnico, the strongest magnetic alloy known. Their exclusive "double gap" construction with recessed surface insures effective removal of magnetic impurities from a wide variety of products. Because they require no electrical current and have no moving parts to wear out they furnish dependable and economical protection.

Write today for descriptive literature.

RICHMOND MFG. CO.
LOCKPORT, N. Y.

When inquiring specify CP A5124 — see handy form pages 2-3

Production

Thermometer Calibrating Tank Has Thorough Agitation

*Provides closely controlled temperature;
Four sizes available*



Thermometer calibrating tank

Thermometer calibrating tank — These calibrating tanks are practical for thermometer manufacturers and the large industrial, chemical and refinery plants where constant checks for accuracy of thermometers are essential. *Features* — To meet the rigid specifications required for a constant temperature bath, full agitation of the heating medium is provided. Closely controlled temperatures are also achieved. *Description* — In this calibration tank a motor-driven auger type agitator lifts the heating medium (water, oil or salt, depending on the temperature required) from the bottom of the tank and spills it out at the top. This continuous displacement of liquid provides thorough mixing and constant temperatures. The unit is cylindrical and consists of the main tank of heavy steel, refractory insulated; with a steel or

**Pneumatic Tool and
Machine Users:**
try this NEW air separator—



The Swartwout Co.
18539 Euclid Ave.
Cleveland 12, Ohio

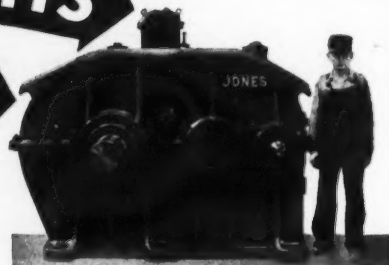
The Swartwout
AIRFUGE
Gives you better pneumatic tool operation—
saves maintenance
trouble and expense

Repeated tests show that compressed air delivered by the AIRFUGE is 99% or more free of contamination. Simple, effective centrifugal action removes moisture, oil rust, scale, etc. without pressure loss. Write for Bulletin S-13.

AIRFUGE
AIR SEPARATOR AND TRAP

When inquiring specify CP A5126 — see handy form pages 2-3

Whether you need **THIS**
—or **THIS**



**You can get what you want in
the complete range of Jones Herringbone Speed Reducers**

YOU will find this 128-page catalog of Jones Herringbone Speed Reducers helpful in the selection of reducers in accordance with A.G.M.A. recommended practice for all conditions of service. Jones Herringbone Speed Reducers are built in single, double and triple reduction types and in every standard ratio



in ratings ranging from 1.25 H.P. to 440 H.P.

All these reducers have heat treated gears, ground shafts and are mounted with anti-friction bearings throughout. Liberal stocks are carried to facilitate shipments.

Catalog No. 70 will save you time and effort in laying out drives that call for Herringbone gears.

WRITE FOR YOUR FREE COPY

W. A. JONES FOUNDRY & MACHINE CO., 4455 Roosevelt Rd., Chicago, Ill.

Jones

HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS • PULLEYS
CUT AND MOLDED TOOTH GEARS • V BELT SHEAVES • ANTI-FRICTION
PILLOW BLOCKS • FRICTION CLUTCHES • TRANSMISSION APPLIANCES

When inquiring specify CP A5125 . . . see information request blank, pgs. 2-3

PROTECT
"Production Steps"

...with Inland 4-Way Floor Plate

Any step by an employee that results in a slip or fall has its effect on your profit. The most important movement in your plant is—Production Steps! Steps that must be protected.

Farsighted management looks to Inland 4-Way Floor Plate, relies on it, to safeguard those Production Steps . . . it's the sturdy, faithful guardian of the men who "man" the production line.

Inland's safety floor plate, with its four-way lug, provides a sure grip traction for foot and wheel on floors, walkways, ramps, platforms and steps—any place where accidents could occur.

Made of hot rolled steel, Inland 4-Way Floor Plate practically eliminates maintenance—it won't burn, warp, crack, splinter or absorb liquids and odors. Easily installed and the essence of economy—once placed, Inland 4-Way Floor Plate is there to stay! Write today for your copy of the Inland 4-Way Floor Plate catalogue!

Inland Steel Company, 38 South Dearborn Street, Chicago 3, Illinois.
Sale Offices: Cincinnati, Detroit, Indianapolis, Kansas City, Milwaukee, New York, St. Louis, St. Paul.

INLAND STEEL COMPANY
OTHER PRODUCTS: BARS • STRUCTURALS • PLATES • SHEETS • STRIP •
TIN PLATE • PILING • REINFORCING BARS • NAILS • TRACK ACCESSORIES

When inquiring specify CP A5127 — see handy form pages 2-3

CHEMICAL PREVIEW

Production

copper inner tank. Between these are the heating elements. The top of the inner tank extends outward over the main tank wall, and part way down the outside, to prevent liquids from reaching the heating elements. The following sizes are available: 6" diam. 14" deep; 10" diam. 18" deep; 10" diam. 36" deep; 10" diam. 65" deep. Tanks are generally furnished with "Folded-and-Formed" heating elements, assuring even distribution of heat for temperatures from room to 1200° F. More detailed information may be secured on request.

HAROLD E. TRENT CO., Dept. CP, 235 Leverington Ave., Philadelphia 27, Pa.

When inquiring specify CP A5128 — see handy form pages 2-3

★ Stools and Chairs are Adjustable Instantly

*Any seat height from 12" to 36". No tools
required to make adjustment. Holds
without slippage*



Seat height quickly adjusted

Uses — Wherever seating is necessary for bench or machine work this easily adjusted stool is applicable.

Features — No wrench, screw driver or other tool needed to adjust height. No bolts, nuts, screws or handwheels necessary. No tipping is required to make adjustments. Seat holds securely at adjusted height.

Description — Adjusting device works on same principle as bicycle coaster brake. To increase height of chair, seat is lifted to correct height. Seat will remain securely in that position. Lowering can not be accomplished until seat is raised above extreme seating height where mechanism automatically releases.

To lower seat, raise above extreme seating height and allow it to drop all the way down, then gradually lift upward until desired height is attained. Adjustment is made on the upward movement only. When released from maximum height, seat must be allowed to move all the way down and again raised to desired height, because the adjusting device does not grip on the downward movement. Chairs are available in four heights — 12" to 15", 15" to 21", 18" to 27", and 24" to 36". Information on these units may be had on request.

KEWAUNEE MFG. CO., Dept. CP, Adrian, Mich.

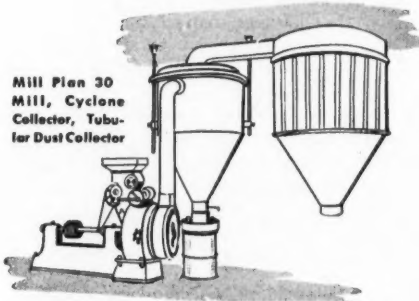
When inquiring specify CP A5129 — see handy form pages 2-3

For Fast, Fine Grinding of DRY CHEMICALS and Allied Products

For general use in pulverizing a great variety of dry chemicals, drugs, colors, gums, glues, or any dry, non-gritty stock, the Schutz-O'Neill Pulverizers are unexcelled. The principle of centrifugal air force impact is fast, produces a uniform product, and will maintain relatively high outputs for superfine grinding up to 400 mesh. For products with high moisture or oil content, Schutz-O'Neill also has efficient and proven equipment.

SCHUTZ-O'NEILL PULVERIZERS

are made in 12", 16", 20", 22", 24", and 28" sizes, with capacities ranging up to 2000 lbs. per hour, depending upon kind of material and fineness desired.



Mill Plan 30
Mill, Cyclone
Collector, Tubular
Dust Collector

MILL PLANS FOR ANY SET-UP

Schutz-O'Neill has a great variety of Mill Plans for different purposes. If you will write us your requirements, products to be pulverized, output desired, and send a sample, Schutz-O'Neill engineers will recommend the correct size and type of mill and the most efficient Mill Plan for your use. This in no way obligates you. Literature on request.



SCHUTZ-O'NEILL CO. DIVISION OF PARTEN MACHINERY CO.

PULVERIZERS • BREAKER MILLS • ROLLER MILLS • BURR MILLS • HAMMER MILLS

303 SIXTH AVENUE SOUTH • MINNEAPOLIS 15, MINNESOTA

When inquiring specify CP A5130 . . . see information request blank, pgs. 2-3

MILL WITH CYCLONE COLLECTOR

This is a simple, compact, economical outfit for steady production where coarse or medium fineness is desired. It amply serves the needs of many users for a great variety of work.



12 INCH MILL FOR LABORATORY, PILOT PLANT OR SMALL PRODUCTION

This ball-bearing mill is easily set for coarse, medium or fine grinding. Delivery of product is into a Cyclone Collector and Tubular Dust Collector combined in one compact unit. Capacity 20 to 150 lbs. per hour.

Requires only 2 to 3 H.P. Excellent for small regular production as well as laboratory or pilot plant use.



RIGID

TRISTAND

**gives you a smart
wise and handy work-
bench all in one...**



● Carry it easily to the job, set it up on its tip-proof fold-in legs—and you've got unusual working convenience. Roomy tray for dope pot, oil can, handy slots for tools, a pipe rest to make cutting or threading easier, 3 benders that won't dent pipe—and either yoke or chain vise with LonGrip jaws that hold pipe firmly without scratching. More for your money; ask your Supply House for **RIGID** Tristands.



RIGID

WORK-SAVER PIPE TOOLS
THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U. S. A.

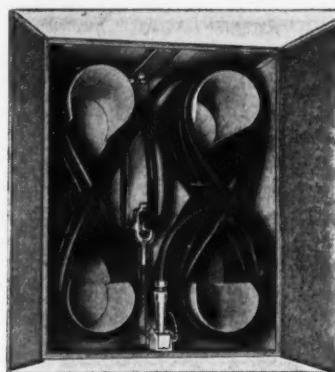
When inquiring specify CP A5131—see handy form pages 2-3

Page 104

Production

Fog Fire Fighting Unit Operates From City Water Pressure

Fog nozzle throws protecting wall in front of operator—fog dilutes vapor and washes air behind nozzle



Fog fire fighting cabinet

Description—This product is built in two models, one with a short hose and small cabinet, the other has a larger cabinet and 100 ft. of one inch hose. The unit is connected directly to a water line. A swing-joint mounting on the wall or a stand pipe makes it possible for the cabinet to revolve in alignment with the direction of the hose pull. A valve actuating fixture holds the fog nozzle for instant use and fog appears at the nozzle within four seconds after reaching for the hose. The automatic valve releases the spray to full capacity instantly upon removing the nozzle from the cabinet fixture. With fog fire control there is much less water damage than with a solid stream of water, but to provide protection in instances where a flame is impossible to reach with fog, the unit is also equipped with a standard solid stream nozzle. The hose stows easily with a "figure 8" winding that voids kinking.

Recommended to be located at the points of greatest hazard in industrial plants and institutions, the fog nozzle throws up a protecting wall in front of the operator, shielding him from intense heat of the blaze. The fog also dilutes the vapor and washes the air behind the nozzle so that the operator may safely enter a gas- or smoke-filled area.

BOWSER, INC., Dept. CP, Fort Wayne, Ind.

When inquiring specify CP A5132—see handy form pages 2-3

Silverstitcher Makes Stronger Cartons — Speeds Production

Dampness does not affect steel stitching wire

Uses—This unit provides a means of securely fastening together corrugated boxes and cartons with steel stitching wire. The machine may be installed in the production line of any packaging set-up.

Features—Stitching with steel wire makes a stronger package or carton not affected by dampness. Labor and material costs are reduced.

Description—Silverstitchers are available in three throat sizes—12"-20" and 25". These figures represent the distance between the front of the frame and the clinching

Uses—This device has application in fire protection in general industry, warehouses, handlers of paint products and solvents.

Features—Unit employs a "fog fire" principle which is said to reduce water damage. A specially designed nozzle supplies a finely atomized fog with only a medium pressure normally provided by water systems.

ON GUARD

against
RUST • DIRT • SCALE

LESLIE Self-Cleaning Strainers

LESLIE Self-Cleaning Strainers provide the most inexpensive protection for valves, regulators, turbines, pumps, traps and similar equipment. They prevent costly shut-downs and heavy repair bills.

Self-Cleaning feature allows cleaning the screen without removal from strainer body or shutting-off the operating fluid.

Straight thread and gasket joint on all screwed end strainers permits easy removal of screen.

FOR ALL COMMERCIAL PRESSURES, they are available in the following body materials, connections and sizes.

Body Material	Connections	Size in Inches
Cast Iron Bronze Cast Steel	Screwed or Flanged	1/4—8
Forged Carbon Steel	Socket Welding Ends	1/2, 3/4, 1
Cast C-MN Steel		1, 1 1/4, 1 1/2, 2
Cast Stainless Steel*	Screwed	1/2, 3/4, 1

*Now available in stock.

SEND FOR Strainer Bulletin 465 containing new chart for computing steam pressure drops through strainers—no obligation.

ESTABLISHED 1900
LESLIE
CO.

LESLIE CO.
281 Grant Avenue • Lyndhurst, N. J.

PRESSURE REDUCING VALVES • PUMP GOVERNORS • PRESSURE CONTROLLERS
TEMPERATURE REGULATORS • SELF-CLEANING STRAINERS • LESLIE TYRON WHISTLES

When inquiring specify CP A5133—see handy form pages 2-3

Save production time with a SHOPLIFTER

One man can handle heavy dies up to 500 lbs. alone.

Handy for general shop lifting jobs—loading trucks, etc.

Easily moved about on the 4" diameter wheels.

Platform, steel plate, 24"x24"
Overall height—6'0"
Platform lift—4'6"

Floor lock (optional) holds machine firmly to the floor.

Other Economy Lifting Machines of heavier capacities up to 5000 lbs. available.

Write for catalog.

PROMPT DELIVERY
2691 W. Van Buren St.
Chicago 12, Ill.

Price \$147.50
Floor lock \$10.00 extra.
Full Freight Allowed

ECONOMY ENGINEERING CO.

When inquiring specify CP A5134—see handy form pages 2-3

CHEMICAL PREVIEW

REX-WELD

...FOR MACHINES WITH THE SHAKES

Vibrating machines give rigid connections the "shakes." The result—costly fatigue failure. Durable, easy-to-install REX-WELD flexible metal hose can take the "shakes." It safely absorbs vibration—minimizes breakdown hazards.

Pressure-tight, corrosion-resistant REX-WELD efficiently handles steam, gases and many types of searing fluids. It withstands temperatures to 1000° F. and burst pressures to 11,000 p.s.i.—depending on size. Sizes range from 3/16" to 12" I.D. (incl.). Write for information about how REX-WELD can solve your flexible metal hose problems. Ask for Booklet E-144.



Flexible Metal Hose for Every Industrial Use

CHICAGO METAL HOSE CORPORATION
MAYWOOD, ILLINOIS
Plants: Maywood and Egin, Ill.

When inquiring specify CP A5135—see handy form pages 2-3



CHROMALOX

Electric HEATERS

Compact CHROMALOX Electric Heaters are quickly installed in dies, molds, platens, tanks, moving parts and other spots needing dependable heat. Accurate control, process uniformity and operating economy are a few of the advantages gained by their use. Your request brings full information on this "packaged heat"—the booklet "100 Ways to Apply Electric Heat"—and address of CHROMALOX Application Engineer serving you.

EDWIN L. WIEGAND CO. 7517 THOMAS BLVD., PITTSBURGH 8, PA.

CHROMALOX
ELECTRIC HEAT FOR MODERN INDUSTRY

When inquiring specify CP A5136—see handy form pages 2-3

Production

point in stitching position. Depending on the applications, speeds of 170, 200, 230, 265, and 285 staples per minute are available. Unit is driven by 1/4 HP motor. Stapling



Silverstitcher at work fastening cartons

wire available for use with the machine comes in one-piece coils, true to size and temper non-tangling and rust resisting.

ACME STEEL CO., Dept. CP, 2840 Archer Ave., Chicago 8, Ill.

When inquiring specify CP A5137—see handy form pages 2-3

Snap Switch Handles up to 550 Volts

Completely tested for industrial use



Snap switch is small size

Uses—Designed for a wide scope of applications this switch is a self-contained mechanism and handles up to 550 volts.

Features—Unit is small in size—features husky construction for making or breaking a circuit, in a small space, with short movement and light pressure.

Description—Size is 2 1/2" x 1" x 7/8" and has easy mounting convenience. Bulletin 204, which shows complete details may be had on request.

SQUARE D CO., Dept. CP, 6060 Rivard St., Detroit 11, Mich.

When inquiring specify CP A5138—see handy form pages 2-3

You cut perfect 1" to 2" pipe threads with least effort with Precision-built, Self-contained

RIGID

No. 65 R



● If you've never used this remarkable steel-and-malleable No. 65R die stock, you have a pleasant surprise coming. Workholder sets to pipe size instantly, no bushings to fool with—dies adjust to 1, 1 1/4, 1 1/2 or 2" pipe in 10 seconds! With least possible effort the high-speed steel chasers cut smooth perfect threads on any pipe. It's precision quality in every part. For performance and long life... for surprisingly easy threading... buy the RIGID 65R at your Supply House.



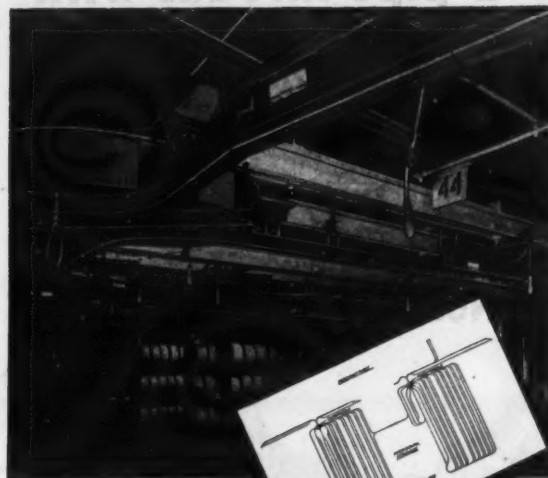
RIGID No. 65 R stands up handily on the floor.

RIGID
WORK-SAVER PIPE TOOLS
THE RIDGE TOOL COMPANY • ELYRIA, OHIO, U. S. A.

When inquiring specify CP A5139—see handy form pages 2-3

FLEXIBILITY

OF AMERICAN MONORAIL EQUIPMENT



SOLVES DIFFICULT HANDLING PROBLEMS

Here is another of the hundreds upon hundreds of handling problems efficiently and economically solved by American MonoRail Overhead Handling Equipment.

THE PROBLEM: To eliminate manual handling of reels from production machines to storage, from storage to finishing, from finishing to storage or shipping as required.

THE ANSWER: The FLEXIBILITY of American MonoRail switching arrangements permits reels to move on carriers with no rehandling between processes. Ample live storage is allowed, permitting free movement between all processes.

What is your handling problem? American MonoRail Engineers come up with the answer to efficient and economical handling ninety-nine times out of a hundred. We invite your inquiries.



THE AMERICAN MONORAIL COMPANY
13100 ATHENS AVE. • CLEVELAND 7, OHIO

When inquiring specify CP A5140 — see handy form pages 2-3

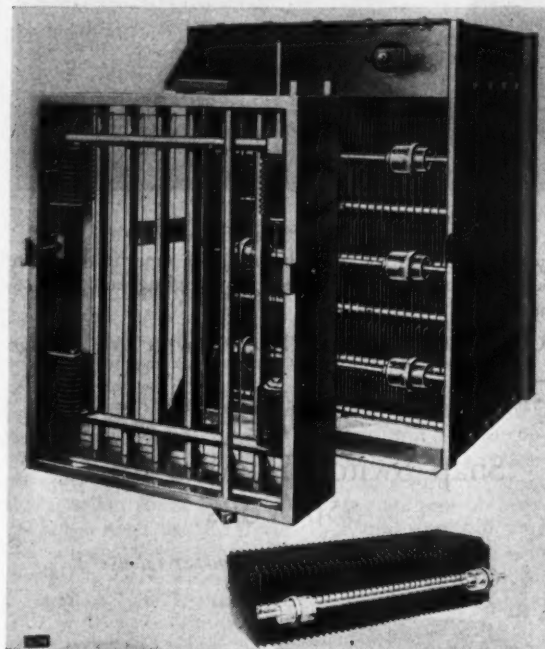
Production

Electronic Air Filter Removes Dust Particles

Construction permits simplified installation

Uses — In the food and chemical processing fields this unit type electronic air filter provides a device to remove electronically dust particles in dust laden air.

Features — Positive and negative collector plates are assembled on cross rods to form horizontal groups — easy to handle and readily removed from the filter casing. This permits simple installation, improved performance and assures better maintenance. Sliding into the filter casing



Unit type electronic air filter

in much the same manner as a desk drawer, plate assemblies can be removed for cleaning and re-oiling at convenient water and sewer connections. A spare set of plates sufficient for one section, reduces the length of time the filter is out of service since the dirty plates may be cleaned at any convenient time. Where manual washing is not feasible, an automatic washing device is available to wash the collector plates in place.

Description — Standard sections of the Electro-Cell are 2' and 3' in width with a capacity of 1000 CFM per unit and range from this minimum to as many sections as are needed. Construction is such that it eliminates duplication of top and bottom sections of box-like units when assembled upon each other. This is accomplished by making the filter in a variety of heights from 27" to 15'-9". In larger sizes (6' or higher), the ionizers are mounted on a bar hinge which swings clear of duct work thus giving full access to collector plates. Extending the full height of the section, electrical losses are reduced to a minimum due to fewer wire ends.

AMERICAN AIR FILTER CO., INC., Dept. CP, First & Central Ave., Louisville 8, Ky.

When inquiring specify CP A5141 — see handy form pages 2-3



Only One Operator

to weigh,
fill, seal
and case
3000
packages
per day!

Here indeed is speed, economy and labor saving packaging. The production of this combination model SR Economy Packager and model SB Power Feed Weigher is 6 to 10 filled and sealed cartons per minute, with only one operator. Gluing of cartons is semi-automatic — weighing and filling automatic. Collector table accumulates supply of finished cartons. The sealer handles all sizes of cartons — the weigher or filler is furnished to suit requirements. This Triangle combination is your best bet for speed, flexibility, tight-sealing, low labor costs, trouble-free operation. Write for full details.

WRITE FOR 20 PAGE BROCHURE

TRIANGLE PACKAGE MACHINERY CO.

917 NO. SPAULDING AVENUE, CHICAGO

BRANCHES IN PRINCIPAL CITIES

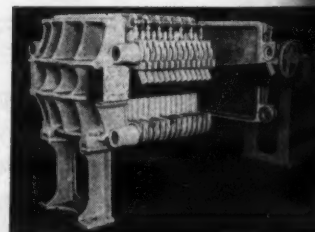
OFFICES IN PRINCIPAL CITIES, UNITED STATES AND CANADA

When inquiring specify CP A5142 — see handy form pages 2-3

Get All These ADVANTAGES

from SHRIVER FILTER PRESSES

IN
FILTRATION
CLARIFICATION
THICKENING
WASHING
EXTRACTION



- 1 Lowest investment and overall operating cost per square foot of filtering area.
- 2 Construction of any metal, rubber, wood or coated metal to resist corrosion or abrasion.
- 3 Operation at any required temperature or pressure.
- 4 Perfect clarification, complete cake recovery, washing of cake, drying of cake, extraction, thickening, catalytic contacting.
- 5 Built in any size for any capacity, with any number of filter chambers, subject to enlargement or reduction of capacity; stationary or portable, easy to assemble, clean, dismantle and move.
- 6 Can be used with any kind of filter cloth, filter paper or filter aids.

These and many other design and performance features make Shriver Filter Presses the equipment you should consider in your present production program. Write for catalog.

T. SHRIVER & COMPANY, Inc.
846 Hamilton St. Harrison, N.J.

When inquiring specify CP A5143 — see handy form pages 2-3

Cooper STAINLESS STEEL FITTINGS



Cooper Stainless Steel Pipe Fittings are machined to close limits for easy installation; they assure leak-proof joints. Available with LUSTRACAST finish obtained from Cooper's electrolytic polishing process which cleans all crevices, inside and out—leaves all surfaces bright, clean and equally resistant—promotes corrosion resistance.

Standard, screwed, flanged, butt-welded and other special use fittings are made in a full range of sizes from 1/8" up.

Sold through largest Stainless Steel distributors in the country. Check with your local distributor.

CA-118

THE COOPER ALLOY FOUNDRY CO.
150 BLOY STREET • HILLSIDE, NEW JERSEY

When inquiring specify CP A5144—see handy form pages 2-3

Where Product Purity is Paramount



Amersil Equipment is Specified
ANNEALED SILICA

IN the manufacture of luminescent materials for television cathode ray tubes, one part per million of impurity in the product can seriously impair the color and reduce the light efficiency. For example, minute concentrations of iron have this effect on the phosphor zinc sulfide. No wonder then that only annealed silica trays, crucibles, and covers are used in this process.

When you have a purity-high temperature problem, why not investigate Amersil. Write for informative catalog.

*Trade Name Registered

AMERSIL COMPANY Inc.
ENGELHARD
CHESTNUT AVENUE HILLSIDE, N. J.

When inquiring specify CP A5145—see handy form pages 2-3

JULY-AUGUST, 1946

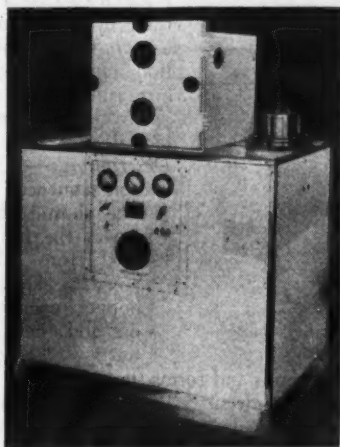
Production

Experimental Dehydration Unit Concentrates Many Products

Developed for experimentation and small scale production

Uses — For use in the laboratory or in pilot production this equipment is a complete "package". This small dehydration unit is used for the desiccation or concentration of heat-sensitive biologicals, antibiotics, food products and fine chemicals.

Features — All mechanism is enclosed in a housing finished inside and out with white baked enamel. Trim and table



Type 3501 small dehydrator

top are of stainless steel. Removable panels are provided for easy servicing and sight ports permit observation of the illuminated interior at any time.

Description — The pumping system consists of a 2-inch oil diffusion pump backed by a 12.5 C.F.M. mechanical pump which is also used for roughing. Time required to pump down to 200 microns of Hg. from atmospheric pressure is 4 minutes and the blank-off is 1 micron or less. Water vapor is handled by a carbon dioxide and acetone (or alcohol) cold trap with a capacity of 4 pounds of ice. Three thermocouple gauges, at the fore pump, diffusion pump and cabinet, indicate vacuum conditions. Provision for four thermocouples in the cabinet permits control of heat input. The drying cabinet measures 16" x 16" x 24", and it is possible to connect larger containers to the system by means of four outside nipples. The cabinet is equipped with 3 adjustable shelves electrically heated with a controllable input of 1 kw.

NATIONAL RESEARCH CORP., Dept. CP, 100 Brookline Ave., Boston 15, Mass.

When inquiring specify CP A5146—see handy form pages 2-3

ANOTHER DIVIDEND for PENNSYLVANIA SUGAR

PENNSYLVANIA SUGAR COMPANY
1037 NORTH DELAWARE AVENUE
PHILADELPHIA 25, PA.

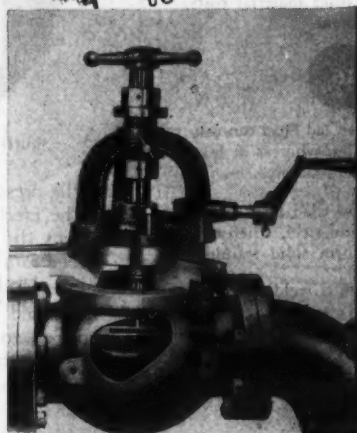
February 5th, 1946

Gentlemen:

No doubt you will be interested to know that the Dexter Valve Reseating Machine which we purchased from you seventeen years ago has reseated thousands of valves thru-out the plant ranging in sizes from 1" up to 16".

It is with pleasure I take this opportunity of advising you that this reseater has proven most satisfactory to us as a time and money saver.

Sincerely,
N. Smith
Plant Engineer



● The Dexter Machine is simple. With it, one man reseats worn and leaky valves right on the line. No removal, no replacement, and only a few minutes needed to do it. No matter where you use valves, you need Dexter Valve Reseating Machines and Cutters—the outfit that converts an expense into a paying investment. Send the coupon today.

Jobbers Wanted

Dexter Valve Reseating PAYS OFF!

Here is absolute proof of year after year savings from the use of Dexter Valve Reseating Machines. Long ago the small investment in Dexter equipment was paid off in valve expense saved, production time gained and headaches averted.

Now Pennsylvania Sugar Company actually chalks up a profit—a dividend—earned by the Dexter Machines it owns.

Read their letter—it presents facts vital to your maintenance budget.

THE
LEAVITT
MACHINE CO.
Orange, Mass.

THE LEAVITT MACHINE CO.
160 E. River Street
Orange, Mass.

Please send me your free new folder on "The Cost of Leaky Valves".

Name.....

Title.....

Firm.....

Address.....

When inquiring specify CP A5147—see handy form pages 2-3

THE KEY to Lower Costs

Save 3 WAYS WITH

JESSOP STAINLESS-CLAD STEEL*

1 LOWER MATERIAL COSTS

Degree of cladding is from 5 to 50% . . . and you pay only for the stainless in the cladding. Savings are particularly great in heavy gauges. Lower material costs reduce the cost of fabricated equipment.

2 LOWER FABRICATING COSTS

Hot Forming—JESSOP Stainless-Clad Steel can usually be hot formed in one operation, whereas at least two operations are necessary on solid stainless.

Cold Forming—JESSOP Stainless-Clad Steel can be cold formed almost as easily as mild steel, whereas it is much more difficult to cold form solid stainless.

Welding—The quantity of stainless welding rod is reduced, since carbon steel welding rod may be used on the mild steel side. Savings depend upon the gauge of the steel and the percentage of cladding.

3 LOWER OPERATING COSTS

JESSOP Stainless-Clad Steel transfers heat much more readily than solid stainless . . . permitting substantial savings in fuel costs where heat is applied to the equipment. Maintenance and replacement costs are minimized, since JESSOP Stainless-Clad Steel affords the same protection as solid stainless on the stainless-clad side. Actual savings with JESSOP Stainless-Clad Steel depends upon the size of the vessel, the gauge of steel, and the percentage cladding. Our engineers will cooperate fully with your fabricator in the application of this cost-saving material to your requirements. Literature on request.

*Manufactured under U. S. Pat. Nos. 1,997,538; 2,044,742; 2,147,407; and 2,225,868. Canadian Pat. No. 383,153.

JESSOP STEEL CO.
WASHINGTON, PA.

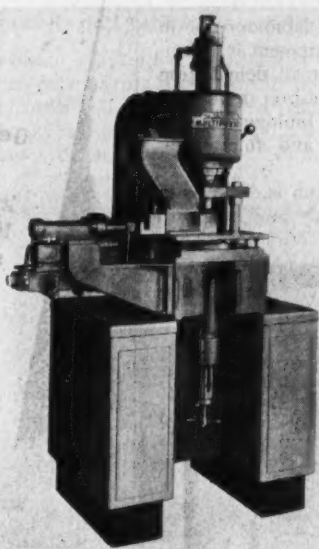
Manufacturers of High Grade Specialty Steels

When inquiring specify CP A5148 — see handy form pages 2-3

Production

Shuttle Feed Broadens Scope of Multi-Purpose Hydraulic Press

*Designed for high speed production jobs —
equipped with positive interlock control*



Shuttle feed installed on a
multipress

1. The shuttle feed moves the filling box from the powder storage hopper over the die and then retracts.
2. The pressure ram descends and forms the pellet.
3. The ejection ram raises, ejecting the pellet, and maintains the pellet above the die surface until the shuttle feed ram has again moved the filling box over, off-bearing it and again filled the die.

Units used in setting up a pelleting machine are also equipped to provide "vibratory action." The press ram action can be pre-adjusted to deliver up to 18 short full pressure loaded strokes in conjunction with each full stroke. The length of these short vibratory strokes is subject to adjustment in the range from 1/32 to 1/2 inch. Maximum rate of ram travel is 200 inches per minute down and 300 inches per minute up. During the last two inches of ram stroke pressure downward, the speed can be reduced any place in the range downward to 40 inches per minute. Through this adjustment it is possible for a forming punch to approach a die rapidly and then be slowed down just as it enters the die. An individual pressure regulating adjustment is provided for the ejection ram. Also, an adjustment provides for maintaining the ejection ram in the full up-stroke position long enough to insure that the pressed and ejected part is removed from over the die cavity before the feeding ram retracts. Accurate and variable die fills can be obtained by raising or lowering a bottom stop adjustment in the knock-out cylinder. Die fills up to 3 inches in depth may be obtained and dies up to 4 inches in diameter can be accommodated on the press shown. Different filling boxes utilizing the same feed hopper can be provided in variable widths and heights so that the minimum pressing ram stroke required for a particular operation can be used. Complete details may be secured on request.

THE DENISON ENGINEERING CO., Dept. CP, Columbus 16, Ohio.

When inquiring specify CP A5149 — see handy form pages 2-3



End detail
of No. 251 "Shaf-tite"
Wood Roll

"SHAF-TITE" ROLLS solve many roll problems!

The exclusive "Shaf-tite" end construction, strongest wood rolls, plus longer life and lower cost are all features of Rodney Hunt "Shaf-tite" Rolls that insure the solution of many industrial roll problems. Send for catalogue today.

RODNEY HUNT MACHINE CO.

273 Maple St., Orange, Mass.

When inquiring specify CP A5150 — see handy form pages 2-3



**NO LABOR
BOTTLENECKS
IN THE
FILTER ROOM**

WITH THE NEW SPERRY EHC CLOSING DEVICE

When you install this Sperry EHC Closing Device you eliminate delays caused by the time and effort consumed in opening and closing filter presses. One person . . . man or woman . . . can open or close the largest press, a job which ordinarily requires two men.

Just two manual adjustments control the entire operation of the EHC Closing Device, which can easily and quickly be applied to your present filter press. On Sperry Filter Presses, removal of the crosshead is all that is necessary.

Write for complete information about the new Sperry EHC Closing Device which pushes up production and lowers costs.

D. R. SPERRY & COMPANY
Batavia, Illinois

When inquiring specify CP A5151 — see handy form pages 2-3

Basco-TEX

Genuine
**PLASTIC
APRONS!**

**WATERPROOF - ALKALI PROOF
ACID AND OIL RESISTANT**

*Will not crack or peel.
No laundering—just wipe
off with damp cloth.
Topmost protection.*



Free Sample Swatch
on Request

ASSOCIATED BAG & APRON CO.
24 W. ONTARIO ST., CHICAGO 10, ILL.
SUPERIOR 5809
Order by Mail or Phone

WHITE—Light Weight	
27 x 36	.....\$ 6.88 per doz.
30 x 36	..... 7.65 per doz.
36 x 40	..... 9.35 per doz.
36 x 44	..... 10.18 per doz.
Full Length Sleeves 7.15 per doz. pr.	
BLACK—Light Weight	
27 x 36	.....\$ 8.40 per doz.
30 x 36	..... 9.78 per doz.
36 x 40	..... 11.90 per doz.
36 x 44	..... 12.60 per doz.
Full Length Sleeves 9.66 per doz. pr.	
GRAY—Medium Weight	
27 x 36	.....\$ 8.40 per doz.
30 x 36	..... 9.78 per doz.
36 x 40	..... 11.90 per doz.
36 x 44	..... 12.60 per doz.
Full Length Sleeves 9.66 per doz. pr.	
MAROON—Heavy	
Double Coated Neoprene	
27 x 36	.....\$10.61 per doz.
30 x 36	..... 12.60 per doz.
36 x 40	..... 16.50 per doz.
36 x 44	..... 18.45 per doz.
Full Length Sleeves	
\$12.90 per dozen pair	
Leggings, Hip Length	
\$23.50 per dozen pair	
BLACK—Heavy	
Double Coated Neoprene	
27 x 36	.....\$10.61 per doz.
30 x 36	..... 12.60 per doz.
36 x 40	..... 16.50 per doz.
36 x 44	..... 18.45 per doz.
Full Length Sleeves	
\$12.90 per dozen pair	
Leggings, Hip Length	
\$23.50 per dozen pair	
WHITE—Extra Heavy	
20 Mil Plastic	
27 x 36	.....\$12.90 per doz.
30 x 36	..... 14.00 per doz.
36 x 40	..... 18.35 per doz.
36 x 45	..... 20.50 per doz.
Full Length Sleeves	
\$12.90 per dozen pair	
Leggings, Hip Length	
\$23.50 per dozen pair	
All Prices F.O.B. Chicago.	
Minimum order 1 dozen	

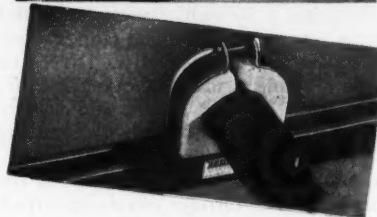
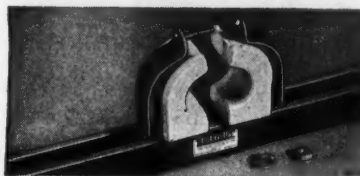
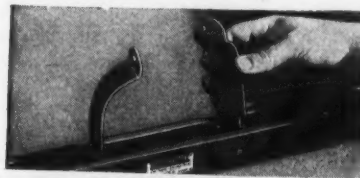
Production

Cable & Conduit Clamp Held Firmly in Support By Only One Bolt

No holes to locate or drill

Uses — This clamp for cables, conduit, pipe or wires is installed by simply locating it at the desired point on a hollow ware support member where it is fastened by tightening a single bolt.

Features — Quick, easy installation. No holes to locate or drill, the slot in the member being the equivalent of a series



Clamp installed in 3 operations

of holes throughout its entire length. The pipe-strap clamps are hooked into the member as illustrated, the insulating clamps are placed against the cable, the bolt inserted and the nut turned up tight. (Porcelain insulator is omitted for conduit or pipe.) This closes the insulators firmly around conductor and also causes the pipe-clamp straps to lock tightly to the member.

Description — The hollow square design of these "Unistrut" members makes it suitable for use as a beam, column or strut. Together with its spring-held nut, the "Unistrut" is used for making various supports. Clamp insulators are made in either porcelain or maple.

UNISTRUT PRODUCTS CO., Dept. CP, 1026 West Washington St., Chicago, Ill.

When inquiring specify CP A5154
— see handy form pages 2-3



While **DUST HOG** fattens on inefficiency, slowing up workers, ruining machinery, spoiling quality, causing accidents—maintenance costs go up. So the cost of *controlling* dust can usually be paid for out of savings in maintenance—and often by reclaiming dust by-products.

Clear out those "dust pockets" where **DUST HOG** is adding to your costs. A free booklet, "Control of Industrial Dust", shows how "plant housekeeping" is easier, cheaper with Pangborn equipment on the job. Write Pangborn Corporation, 286 Pangborn Boulevard, Hagerstown, Maryland—world's largest manufacturer of dust control and blast cleaning equipment.

Pangborn

PANGBORN CORPORATION, HAGERSTOWN, MARYLAND

When inquiring specify CP A5155 — see handy form pages 2-3

CLIPPER MADE THIS CUT IN 29 SECONDS



SPECIAL SIZES and SHAPES

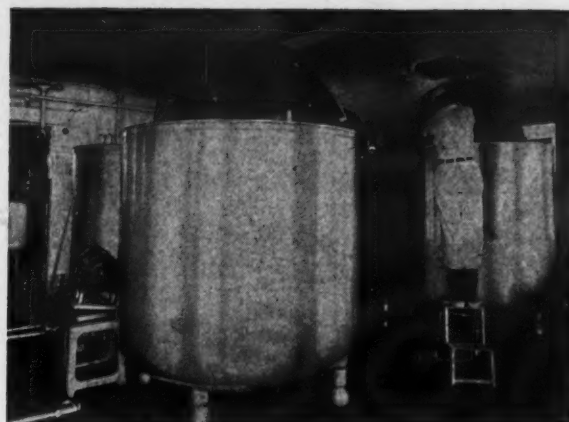
You can cut Straights, Angles, Skews or Notches quickly and easily from Clay, Chrome, Silica, Magnesite, Acid Brick and other materials with Clipper Masonry Saws.

Saves Time—Better Workmanship.
CLIPPER MANUFACTURING COMPANY
4033 Manchester, St. Louis 10, Mo.

YOU CAN TRY A CLIPPER
FREE
WRITE FOR LITERATURE

When inquiring specify CP A5153 — see handy form pages 2-3

JULY-AUGUST, 1946



The John Van Range Co. Equipment of STAINLESS STEEL

Monel Metal Aluminum
Copper Zinc Steel

for the

CHEMICAL and PROCESSING INDUSTRIES

SYNTHETICS FOODS DRUGS
DAIRY PRODUCTS

Special Equipment built to specifications for new and unusual scientific and industrial purposes.

98 Years' leadership in the design and manufacture of equipment for the preparation and serving of food.

Send Us Your Inquiries

The John Van Range Co.

EQUIPMENT FOR THE PREPARATION AND SERVING OF FOOD

Division of The Edwards Manufacturing Co.

302-344 CULVERT STREET CINCINNATI 2, OHIO

When inquiring specify CP A5156 — see handy form pages 2-3

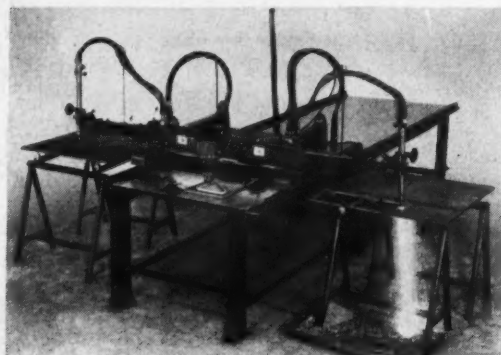
Production

Shape Cutter Handles Intermediate Size Work

Has 36 inch traverse range and with standard table
100 inch longitudinal range

Uses — Unit will handle precision shape cutting on work of intermediate size. Will accommodate pieces up to 36 inches wide.

Features — An attachment is available for this machine which makes it possible to mount the blowpipes on both sides of the tracing table. This feature makes the machine particularly adaptable to high production setups by permitting the cutting of identical shapes simultaneously from plates on both sides of the tracing table.



Shape cutter permits cutting of two identical shapes simultaneously

Description — Machine has a 36 inch traverse range and with a standard table a 100 inch longitudinal range, which may be extended by adding to the length of the table. The carriage of the cutting machine is made of cast aluminum to provide the combination of light weight and rigidity required for accurate shape cutting. Two free-moving pivoted arms mounted on the free-rolling carriage give blowpipe motion in any direction within the limits of the work area of the machine. The carriage travels on a track firmly mounted on a sturdy table frame fabricated from structural members. A flat one piece aluminum plate, 42 inches wide by 144 inches long, supported on the frame between the rails of the track, serves as a table surface upon which the drawing or templet to be traced is placed. The tracing head, powered by a 110-volt universal motor, provides smooth and accurate travel of the blowpipe. A simple eddy-current type speed governor gives an infinite variation of speed — from $3\frac{1}{2}$ to 28 inches per minute — which is indicated to the operator on a speedometer. The machine is equipped for either mechanical tracing with a strip templet or hand-tracing. A magnetic tracing unit is available as an accessory for use when maximum precision in repetitive production shape-cutting is desired. Straight-line cutting guides and a circle-cutting attachment for automatically cutting circles $1\frac{1}{2}$ inches to 36 inches in diameter, are supplied with the machine. The blowpipe holder may be tilted to an angle of 45 degrees from the vertical, to permit making bevel-cuts. By use of supplementary blowpipe holders, mounting bracket and bar two blowpipes may be mounted on the same side of the machine for simultaneous cutting of identical shapes. More details on the unit are available on request.

THE LINDE AIR PRODUCTS CO., Dept. CP, 30 East 42nd St., New York, N.Y.

When inquiring specify CP A5157 — see handy form pages 2-3

PNEUMIX

for

Efficient

Mixing



If your material varies in viscosity — PNEUMIX Air-Motor Agitator has throttle control; it cannot overheat or burn out.

If it is inflammable — PNEUMIX Air-Motor does not spark; it is completely explosion-proof.

If it is corrosive — PNEUMIX Agitator Air-Motor is completely enclosed, splash-proof and fume-resistant.

PNEUMIX is portable, light-weight and designed for long operation with low maintenance cost. Write for details today.

ECLIPSE AIR BRUSH CO.

393 Park Avenue Newark 7, N. J.

ECLIPSE



7-EA-1

When inquiring specify CP A5158 — see handy form pages 2-3

Accident Prevention PLUS Added Strength

The heavy, flanged nosing bar on Hendrick Mitco Shur-Site Treads serves a dual purpose. While making each step highly visible, this deep nosing bar — a patented feature — also provides additional strength at the point of greatest loading. At the same time Shur-Site Treads have a non-slip-ping, non-clogging surface and all the other streamlined Mitco advantages.

Send for catalog giving complete data on Mitco Shur-Site Treads, Mitco Open Steel Flooring and Mitco Armorgrids.



Perforated Metals
Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring
"Shur-Site" Treads and
Armorgrids. Sales Offices in Principal Cities



HENDRICK

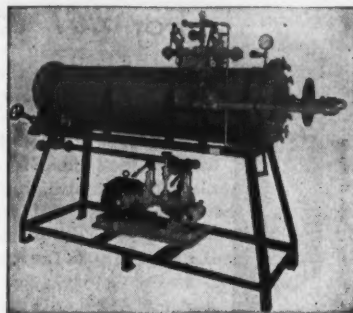
Manufacturing Company

32 DUNDAFF ST., CARBONDALE, Pa.

When inquiring specify CP A5159 — see handy form pages 2-3

Large Capacity Clarification With FULLY MECHANIZED CLEANING

LE VAL
Porous
Stone
Filters



POLY-FLO Models

A multiple arrangement of filterstones provides large capacity in the Poly-Flo Models of Le Val Filters. Rigidly supporting filter-aid, the porous filterstone prevents breakthrough, and positively assures brilliance of filtrate.

Cleaning by valve-controlled stripping sprays eliminates messy hand labor. Ranges of sizes and full description in new Bulletin F-103, available now.

**LE VAL FILTERS
WHITING CORPORATION**
District engineers in 26 principal cities
15667 Lathrop Ave. Harvey, Illinois

When inquiring specify CP A5160 — see handy form pages 2-3

*Expansion
+ "1000 baffles"
= 99% efficiency*

Here is the compressed air separator that combines the two best principles of separation . . . that removes more than 99% of the trouble-causing water, dirt and oil. First a controlled expansion precipitates most of the moisture. Then the "Thousand Baffles" — a labyrinth of coarse mesh — changes flow direction repeatedly to capture the remaining foreign particles. Johnson Separators are available in sizes and styles for all needs—and for service on steam lines, too.



NEWEST idea in separator design is the Johnson Type SA — a self-draining separator with automatic trap mechanism built in. The line also includes Aftercoolers, to condense vaporized moisture—and Oil Absorbers, to remove every trace of oil.

Write for complete bulletin

THE JOHNSON CORP., 826 Wood St., Three Rivers, Mich.

JOHNSON separation devices

When inquiring specify CP A5161 — see handy form pages 2-3

JULY-AUGUST, 1946

Production

Extinguisher Smothers 8 Qt. Gasoline Fire in 9 Seconds

15 Lb. CO₂ model operates with hand trigger; hose and long range nozzle add to safety

Uses — For safe, rapid service in combating industrial fires. Operation of trigger discharge penetrating, snowy blanket of carbon dioxide gas. Under official Underwriters' Laboratories fire test these extinguishers smother an 8 quart gasoline fire in 9 seconds.

Description — This extinguisher is a trigger touch, 15 pound CO₂ unit with an arched steel handle for easy removal of the extinguisher from the holding rack and carrying with one hand to point of use. To operate the extinguisher the nozzle handle is grasped with the other hand and the flow of CO₂ gas started by use of the trigger. The long range hose and nozzle keeps the fire fighter at a safe distance. In addition to 10 and 15 pound hand units there is a 25 pound unit mounted on rubber wheels. A new illustrated folder gives complete information on all of these extinguishers.

RANDOLPH LABORATORIES, INC.,
Dept. CP, 8 E. Kinzie St., Chicago 11, Ill.

When inquiring specify CP A5162
— see handy form pages 2-3

Beverage Visible Thru Translucent Tubing

Imparts no taste and resists flexing

Uses — Koroseal beverage tubing in use prior to the war is again available. In addition to handling beer it also finds applications in wineries and in soft drink plants.

Features — An important innovation in beverage tubing is the "Flametone" translucent type of Koroseal tubing through which the flow of beverages is clearly visible.

Description — The tubing imparts no taste to the liquids it handles and as it does not absorb or deteriorate can be used indefinitely. The tubing is resistant to flexing and to sunlight, strong corrosives, water and oxidation and does not swell or deteriorate in the presence of certain oils or solvents. It is available in sizes ranging from 1/8" to 2 1/2" inside diameter and in made up lengths with couplings to suit the individual user.

B. F. GOODRICH CO., Dept. CP, Akron, Ohio.

When inquiring specify CP A5163
— see handy form pages 2-3



Do the Job Right with Rapid-Wheel CONVEYOR

Help yourself and your employees' "aching backs" by using Rapid-Wheel Gravity Conveyor. Now available in standard 5' and 10' sections.

It's wise to Conveyorize! Send for your FREE copy of the new Rapid-Wheel Conveyor catalog. Complete features, specifications, data, accessories and uses. Write Today!



OFFICES IN PRINCIPAL CITIES

Manufacturers of
STEEL FORGED CASTERS - TRUCKS - CONVEYORS - POWER BOOSTERS

The Rapids-Standard Co., Inc.

Sales Division—350 Peoples National Bank Bldg., Grand Rapids 2, Michigan

When inquiring specify CP A5164 — see handy form pages 2-3



"NATIONAL" TRUCK TYPE TRAY DRYER

For batch drying of various chemicals in moderate quantities. Designed to accommodate one or more trucks carrying any desired number of trays. Recirculating system carries heated air to each tray space in sufficient volume and with proper velocity to assure uniform drying of each tray load without dusting. May be steam, gas or electric heated. Illustrated: "NATIONAL" Truck Type Tray Dryer in one of the plants of Foote Mineral Co. Similar installations in other well-known chemical plants prove the sound design and careful engineering of this dryer.

Send for Illustrated Folder

Chemical Dryers of
All Types and Sizes



Special Drying and
Heating Equipment

THE NATIONAL DRYING MACHINERY CO.
2709 N. HANCOCK STREET • PHILADELPHIA 33, PA.

When inquiring specify CP A5165 — see handy form pages 2-3



This FARRIS Diaphragm Relief Valve No. 1000, is now used on thousands of U. S. Naval and Merchant Marine vessels. No packing-gland — diaphragm sealed for back-pressure jobs. Now used extensively by refineries, power-stations, chemical and industrial plants on various operations requiring non-shock full-capacity relief at only 20% over-pressure and close regulation of operating pressure. Just one of the complete line of FARRIS Relief, Safety and Pop Valves. Write today for Bulletin.

FARRIS DIAPHRAGM RELIEF VALVE, Type 1000. All bronze construction, open spring, meets Navy Spec. 45V26. For water, oil, steam, air, pressures to 150 lb. Sizes 1/2" to 2". Globe construction also.

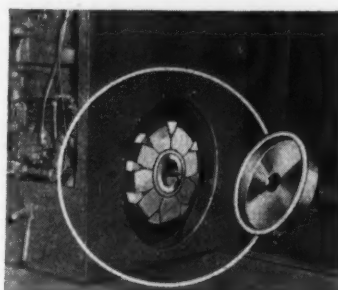


When inquiring specify CP A5166 — see handy form pages 2-3

Production

Auto-Centri Clutch Prevents Breakdowns Caused by Shock Loads

Device permits use of squirrel cage motors and across the line starting equipment in place of high starting torque drives



Auto-centri clutch

with expensive starters and enables across-the-line starting. Saves power by holding the peak to the normal horsepower required to drive the load. Supplies full protection against damage from overloading.

Description — Clutch consists of three main parts: drive body, driven body, and driving mechanism. Drive body is keyed to the shaft of the power unit, and the driven body is keyed to the shaft of the driven machine. Mechanism is composed of a number of metal blocks fitted so as to form an expansion ring. The drive to the load is always entirely disconnected at starting. As the drive shaft gains speed the driving member expands outward, and the increasing centrifugal force is applied smoothly and evenly on the friction wall of the driven body. The horse power of the clutch increases directly as the cube of the speed, and the driven load is brought into motion with a smooth, even acceleration, free of starting shock and damaging strains. In operation the clutch brings the power unit and driven load into step without shock or strain. On drives using internal combustion engines, the clutch will automatically disengage the load when the motor is throttled to idling speed. The unit operates as efficiently in reverse as forward or can be supplied to drive in one direction only. Where equipment is arranged for dual drive such as a motor and turbine driven fan, either clutch disconnects automatically when the driving unit stops. The clutch is available in sizes from fractional horsepower to 5000 h.p. for any type of drive. Complete details are contained in Bulletin No. 45, which may be secured on request.

HARDINGE CO., INC., Dept. CP, York, Penna.

When inquiring specify CP A5167 — see handy form pages 2-3

Constant-Ratio Mixer Has High Efficiency

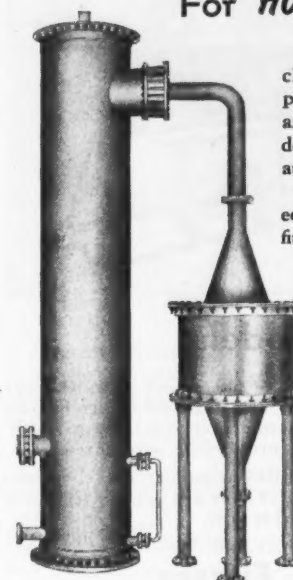
Available in pipe sizes from 3/4" to 4" and suitable for 550-3200 BTU gas

Uses — For any industrial process equipment requiring gas firing this mixer is the first of a series of gas combustion elements.

Features — The Flomixer utilizes the energy of a stream of air at pressures up to 3 lbs. to entrain a combustible

Uses — The automatic clutch is especially designed for drive applications on machines where "starting shock" or overloading exists. **Features** — It permits the use of squirrel cage induction motors and utilizes the full power of the motor at starting. Dispenses

PYROFLEX Tower and Catalyst Chamber For HOT CORROSIVES!



At the left is a catalyst chamber and tower for the production of organic acid. They are of Pyroflex construction, designed to withstand corrosives at high temperatures.

All Pyroflex constructed equipment is custom tailored to fit the job. Functional units such as Absorbers, Concentrators, Coolers, Gas Washers and Processing Tanks are individually designed as to capacity and the corrosive conditions involved.

This equipment is another example of Pyroflex Functional Units designed and constructed by Knight to solve a problem and meet the exact needs of a customer.

Maurice A. Knight

407 Kelly Ave., Akron 9, Ohio

When inquiring specify CP A5168 — see handy form pages 2-3

MAKES ITS OWN OXYGEN
FOR RESPIRATORY PROTECTION IN UNBREATHABLE AIR

THE NEW M.S.A.

Chemox
SELF-GENERATING



OXYGEN BREATHING APPARATUS

For every rescue, firefighting or maintenance emergency in unbreathable air, this remarkable new M.S.A. product supplies oxygen to the wearer's lungs, making him independent of the atmosphere . . . oxygen self-generated in a replaceable chemical canister! Canister supplies protection for one hour—the Apparatus is light, comfortable, simple to use; proved by years of battle service in the armed forces. Write for Bulletin BM-8!

MINE SAFETY APPLIANCES CO.

Braddock, Thomas and Meade Sts. • Pittsburgh 8, Pa.

Branch Offices in Principal Cities

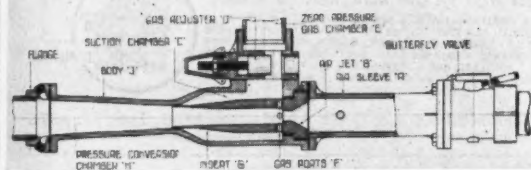
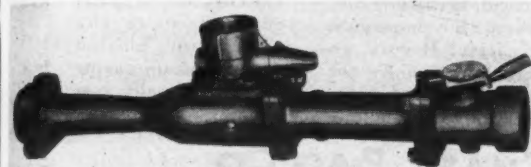
When inquiring specify CP A5169 — see handy form pages 2-3

CHEMICAL PREVIEW

Production

gas and to deliver the mixture at unusually high pressure to the burners. Accurate gas-air proportions are maintained at all rates of flow, as long as zero pressure gas is supplied. This characteristic, also due to streamlined design, gives the entire combustion system a wider range of operation without requiring higher initial air pressure, and eliminates ultra-sensitivity of adjustment.

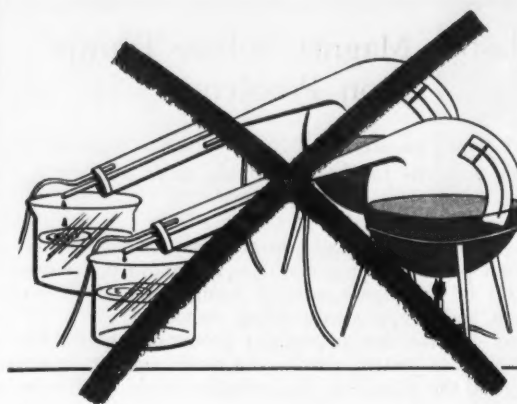
Description — Available in pipe sizes from $\frac{3}{4}$ " to 4", the mixer's efficiency is due to the improved design of internal contours and proportions, with resultant reduction of pressure losses within the unit. Air requirements are accordingly lessened to produce a given mixture pressure, and smaller blowers can be used, or increased burner capacities realized, with the new unit. An air supply of one pound pressure will produce a mixture pressure of 13" water column with natural gas, $11\frac{1}{2}$ " with manufactured gas.



Cross-sectional view of Flomixer

The gas ratio adjuster is a universal type, suitable for any type of gas. Gas from 550-3200 BTU can be handled with no change of equipment necessary in case of change-over. The device is easily adjusted, and may be sealed at any particular setting if desired. The components are provided with square flange joints which make possible a new flexibility of installation as well as ease of break-down. Unions in gas and air lines are eliminated, and right or left, up or down installations are all possible with the interchangeable parts. The air sleeve may be removed from the assembly without disturbing any piping, making the insert accessible for changed capacity or cleaning. Either straight or 90° air sleeves are available. Referring to the sketch operation may be described as follows: Air at any available pressure up to 3#, controlled by the Butterfly Valve; passes through the Air Sleeve "A" into the Air Jet "B", where it develops the maximum possible velocity. This stream of air moving at high speed creates a suction around it in the Insert "G". This strong suction draws gas from the zero pressure chamber "E" through the Gas Adjuster "D", chamber "C" and Gas Ports "F" into the space around the air stream in Insert "G". The mixture flows into the pressure conversion chamber "H" and is delivered from the outlet flange to the manifold piping and burners. Once adjustment "D" is set the Flomixer is controlled by using only the Butterfly Valve. Complete descriptive material which includes selection data sheets for various capacity, air and mixture pressures, is included in bulletin 5C-1, available on request.

BRYANT HEATER CO., Dept. FP, 17825 St. Clair Ave., Cleveland, Ohio.



To extract the alcoholic juice from macerated fruit . . . separating it from the water and pulp . . . a manufacturer was faced with a slow, costly, double-distillation process . . . unless a faster, cheaper method could be found.

AGAIN . . . the answer is centrifuging

This is a typical example of what centrifugal force can bring to the processing industries . . . one of a long list of applications in which AT&M Centrifugals save time, space and costs. Whatever your production problem, there's a good chance that either a standard AT&M Centrifugal or a survey by AT&M's experienced engineering service can give you a better product — faster — for less. A confidential consideration of your problem involves neither cost nor obligation. The coupon will give you a preview of what AT&M offers. AMERICAN TOOL & MACHINE COMPANY, 1425 Hyde Park Ave., Boston 36, Mass., 30D Church St., New York 7, N. Y.

SAVE TIME, SPACE AND COSTS WITH

A.T. and M. CENTRIFUGING

AMERICAN TOOL & MACHINE COMPANY,
1425 Hyde Park Ave., Boston 36, Mass.

Please send information on centrifuging applied to the following processes:

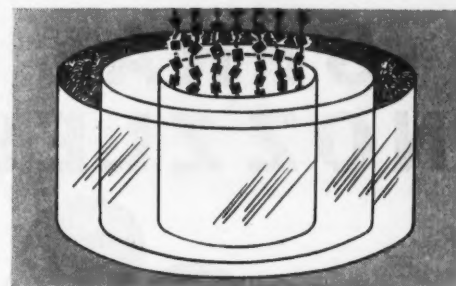
- ☐ Extraction ☐ Filtration ☐ Dehydration ☐ Coating
☐ Precipitation ☐ Sedimentation ☐ Impregnation

Write here any other process.....

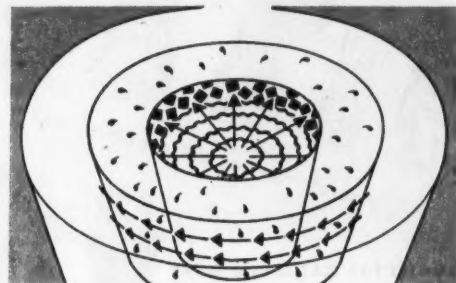
Name.....

Company.....

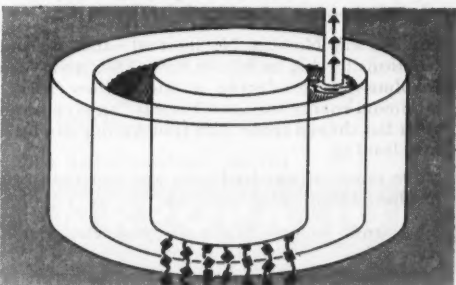
Address.....



The mashed fruit . . . frozen to ice-crystal consistency . . . is loaded into a special AT&M Centrifugal Extractor totally enclosed in a refrigerated jacket.



The Centrifugal, rotating at high speed, forces the unfrozen alcoholic liquid through a filter screen which retains the frozen pulp and water.



The liquid is piped off and the pulp-and-water ice crystals are plowed out through the bottom of the basket.

When inquiring specify CP A5171 . . . see information request blank, pgs. 2-3

When inquiring specify CP A5170 — see handy form pages 2-3
JULY-AUGUST, 1946

for • SPRAYING
• WASHING
• RINSING
• COOLING
• AIR CONDITIONING

YARWAY SPRAY NOZZLES



Get the most out of your Spraying Equipment with minimum power... with efficient spraying.

Use Yarway Nozzles. No internal vanes or other restrictions to clog or hinder flow. Two types—Yarway Involute-type producing a fine hollow spray with minimum energy loss, and Yarway Fan-type producing a flat fan-shaped spray with time-saving slicing action for cleaning.

Wide range of standard sizes and capacities. Cast or machined from solid bar stock.

Thousands in use. Write for new Bulletin N-616.

YARNALL-WARING COMPANY
125 Mermaid Avenue Philadelphia 18, Pa.

When inquiring specify CP A5172 — see handy form pages 2-3

Page 114

Production

Plastics Magnet Solves Tramp Iron Problem

Unit requires no electric power. Easily installed at each machine for heater, nozzle, mold and die protection

Uses — Non-electric plastics magnet may be installed on individual plastic molding machines to remove tramp iron and steel in the plastic material being fed to injection, extrusion, and compression molding machines.

Features — This device provides protection against lost time damage to heaters, nozzles and molds and subsequent burning of the plastic in the scratches made in dies by alien metals.

Description — Permanent, non-electric magnets, made of Alnico are employed. A unit is installed at each machine to provide a means of magnetically cleaning the plastic just before it enters the melting chamber. The plastics magnet is a recent development to the line of industrial magnets being used for the removal of tramp iron from many types of materials in process. A number of designs are available which permits installation on many types of applications. Full details describing the plastics magnet are contained in Bulletin ECP105 which can be secured on request.

ERIEZ MFG. CO., Dept. CP, Erie, Penna.

When inquiring specify CP A5173 — see handy form pages 2-3

Here's a Unit Heater that will withstand high corrosive fumes and high steam pressures

GRID UNIT HEATER

HERE'S WHY

- One piece construction heating sections (patented) of high test cast iron that will withstand steam pressures up to 250 lbs.
- No soldered, brazed, welded or expanded connections to become loose or develop leaks.
- No electrolysis to cause corrosion, breakdowns, leaks or heating failures.

That's why GRID Unit Heaters withstand the corrosive fumes of HCL and CL₂ and operate efficiently for 8 or 10 years without maintenance. New booklet "Corrosion in Unit Heaters" contains information you should know before you install unit heaters. It's free upon request. Send for it today.

HIGH TEST CAST IRON HEATING SECTIONS

Corrosion in Unit Heaters

SEND

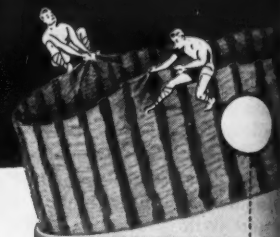
D. J. MURRAY MANUFACTURING CO.
WAUSAU, WISCONSIN

When inquiring specify CP A5174 — see handy form pages 2-3

CHASE LINERS

** Stop Liner Breakage!*

** Stretch in All Directions!*



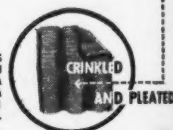
Chase Liners are better, more resilient, more flexible! Here's why: they're crinkled for vertical elasticity and pleated for horizontal elasticity! Result: no more broken liners nor costly damage to contents due to liner failure.

Check on Chase Liners today. They're the crinkled and pleated liners that assure saving... that actually cost no more!

CHASE BAG CO.

GENERAL SALES OFFICES

309 WEST JACKSON BLVD., CHICAGO 6, ILL.
BOISE • DALLAS • TOLEDO • DENVER • DETROIT • MINNEAPOLIS
ST. LOUIS • NEW YORK • CLEVELAND • MILWAUKEE • PITTSBURGH
BUFFALO • KANSAS CITY • MEMPHIS • GOSHEN, IND. • PHILADELPHIA
NEW ORLEANS • ORLANDO, FLA. • SALT LAKE CITY • OKLAHOMA
CITY • PORTLAND, ORE. • REIDSVILLE, N. C. • HARLINGEN, TEXAS
CHAGRIN FALLS, O. • HUTCHINSON, KAN. • WINTER HAVEN, FLA.



When inquiring specify CP A5175 — see handy form pages 2-3

ON YOUR NEXT "Stainless Job"

FIGURE THE LOWER MATERIAL COST OF INGACIAD STAINLESS-CLAD STEEL
See how you save...

In designing new products... new plant equipment... or in modernizing your present plant, it will pay you to consider the generous use of Stainless Steel. Now you can use it freely because IngAcIad Stainless-Clad Steel, at much lower cost, gives all the stainless service you will ever need... on the side that is used.

We produce both IngAcIad and Ingersoll Solid Stainless Steel. Our engineers are, therefore, in a position to advise you without prejudice.

INGERSOLL
STEEL DIVISION • BORG-WARNER CORPORATION
310 South Michigan Avenue • Chicago 4, Illinois
Plants: Chicago, Ill.; New Castle, Ind.; Kalamazoo, Mich.

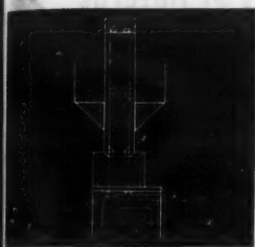
PRODUCTS OF BORG-WARNER

When inquiring specify CP A5176 — see handy form pages 2-3

CHEMICAL PREVIEW

Fabric Cementing System Is Fast, Safe, Economical

Tire fabric manufacturing now an automatic, non-stop process.



Schematic drawing of 10E fabric cementing system. (A) Fabric travel. (B) Evaporating tower. (C) Applicator tank. (D) Cooling drums. (E) Calender.

A new cementing system for synthetic tire fabric has doubled and tripled previous cementing speeds, and at the same time has eliminated spreader room fires which were once a daily occurrence in the tire industry. Sixty-inch material previously cemented at 20 yards per minute now travels 60 yards a minute through calendering and cementing bringing a production increase of 300 percent.

Interlocking controls make it impossible to start the calendar train under unsafe conditions. For more data on operation, send for our FREE reprint, "High Speed Handling and Drying in the Cementing of Tire Fabric."

THE INDUSTRIAL OVEN ENGINEERING CO.,
Dept. CP, 13825 Triskett Road, Cleveland 11, Ohio.

When inquiring specify CP A5177 — see handy form pages 2-3

INTERNATIONAL

PORTABLE MIXERS

MEDIUM and HEAVY DUTY. Modern Design and many different types, Direct Drive, Gear Motor, Slow-Speed.

PERMANENT MIXERS

With or without Tanks—Top or Side Entrance—Stirrers of the propeller or turbine type.

DRY BLENDERS, AUTOCLAVES, KETTLES AND DIGESTERS



CATALOG
No. 100. Mixers, Autoclaves, Blenders, Ribbon Mixers, etc.
No. 110. New ready
CATALOG No. 95
on BALL MILLS—
Either catalog or
both sent on request.

4. RUBBER MIXERS
Roll or Motor Driven.

INTERNATIONAL ENGINEERING, INC.
Dayton 1, Ohio.

NEW YORK 15 Park Row • CHICAGO 407 S. Dearborn
LOS ANGELES 4, 150 N. HORTON AVE.

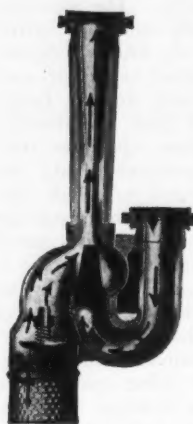
When inquiring specify CP A5178 — see handy form pages 2-3

VIEW JULY-AUGUST, 1946

Productions

Pump Booster Lifts Water One Hundred Feet

Employs jet pump principle



Sectional view of pump booster

Uses — This booster makes inaccessible water available for fire fighting purposes or it may be used for water drainage purposes beyond the reach of other pumping equipment.

Features — Employing the jet principle, this unit has no moving parts, weighs but 18 pounds, and will not become clogged.

Its simplicity and lack of moving parts are illustrated by the section drawing.

Description — Using standard pumping equipment, the pump booster will lift water vertically 100 feet or more, and will draft water for distances of 200 to 300 feet from water sources impossible to reach. Installation and use are simple: Two 2½" soft hose lines, are run from the pumper to the booster which is submerged in the water supply. When the pumper takes suction after priming, the driving water going through the jet entrains additional water which is returned to the suction side of the pumper. This additional water is available for fire fighting. The size illustrated will supply adequately a ½" tip. Complete details are available on request.

DERBYSHIRE MACHINE & TOOL CO., Dept. CP, 5215-M Belfield Ave., Philadelphia 44, Penna.

When inquiring specify CP A5179
— see handy form pages 2-3

★

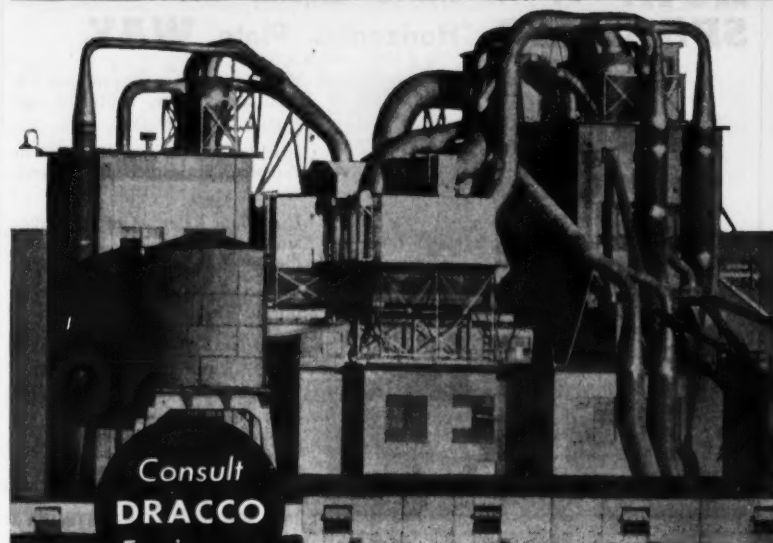
Clamps Formed In Diameters From ½" - 30"

Tool and steel bands in four widths with which it is possible to provide individually tailored clamps to any object are described in a new two-colored bulletin. The buckles used, like the band, are made of special steel.

BAND-IT CO., INC., Dept. CP, 2536 Walnut St., Denver 3, Colo.

When inquiring specify CP A5180
— see handy form pages 2-3

FREE YOUR PLANT from the Handicap of Dust



Consult
DRACCO
Engineers

Experience of many plants proves that dust, even in small amounts, slows production . . . reduces plant efficiency . . . and increases maintenance expense. DRACCO Dust Control stops at their source the losses and expenses due to dust. The elimination of dust is helping many plants to meet keen POSTWAR competition. DRACCO Dust Control produces better working conditions . . . adds to the life of machinery. Why not have DRACCO Engineers check your plant and recommend a plan of dust control?

For Further Information Write

DRACCO CORPORATION

4060 E. 116th St., Cleveland 5, Ohio New York Office: 130 W. 42nd St.

DUST CONTROL EQUIPMENT
PNEUMATIC CONVEYORS • METAL FABRICATION

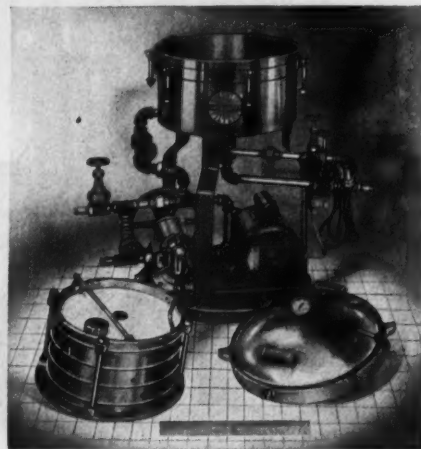
When inquiring specify CP A5181 — see handy form pages 2-3



Take a Step up
in

QUALITY PRODUCTION

HOW? By FILTERING Liquids the **SPARKLER** "Horizontal Plate" **WAY**



SPARKLER MFG. COMPANY
244 Lake Street, MUNDELEIN, ILLINOIS

THEN — expect products of maximum clarity, brilliance and purity — at low cost.

Sparkler Filters, with built-in Patented Scavenger Plate, provide —

Fast Flow Rates. Uniform cake; ample freeboard for run-off of filtrate.

Long Cycles. Cake stability even during intermittent operation.

Complete Batch Filtration. Cakes may be blown dry; no unfiltered residue.

Easy Cleaning. No cloths to wash. Low Operating Cost.



When inquiring specify CP A5182 — see handy form pages 2-3

Production

Rotary Disc Vacuum Filters For Dewatering Operations

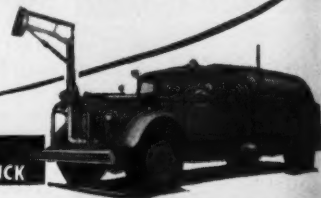
Bulletin covers multiple disc filters which are furnished in both "pie-shaped" and the improved tangential segment disc. The latter type provides a 23% increase in dewatering capacity. The multiple disc filter is particularly suited to selective flotation processes in which different pulps must be handled separately and simultaneously, the only limiting factor being the number of discs. Information is given on application, operation, construction, auxiliary equipment, and the weights and dimensions to which this filter applies. Following submergence for the cake building cycle the discs travel through an arc wherein the filter cake is washed free of original solution by an atomizing spray application. Positive cake discharge by blow-back is effective in keeping the filter medium from binding. An automatic filter valve controls the filter cycle of cake building, washing, drying and positive discharge. Booklets sent on request.

GENERAL AMERICAN TRANSPORTATION CORP., Dept. CP, 420 Lexington Avenue, New York 17, N. Y.

When inquiring specify CP A5183
— see handy form pages 2-3

CARDOX

Has Broadened the Scope of
CO₂ FIRE PROTECTION
for Many Types of Hazards



**AIRPORT
CRASH-FIRE TRUCK**



FIRE TRUCK



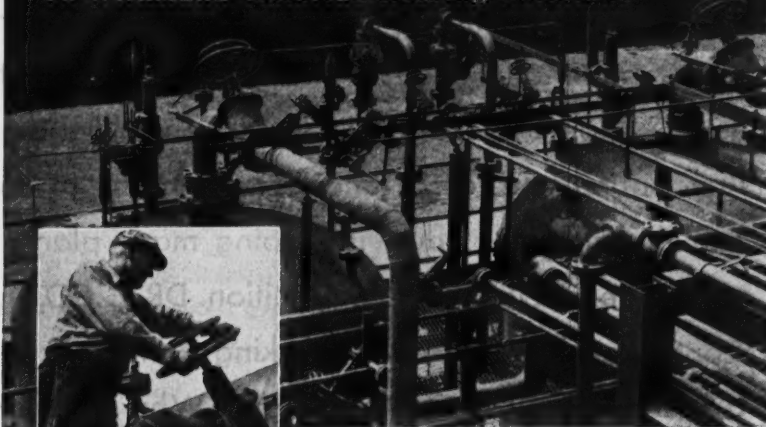
FIXED SYSTEMS

Write for Bulletin 1636

CARDOX CORPORATION
Bell Building Chicago 1, Illinois

When inquiring specify CP A5185 — see handy form pages 2-3

To Withstand Chloride-Bearing Solutions



*Ethylation Reactor Valves Are
Made of HASTELLOY Alloy B*

These valves at the top of ethylation reactors used in the production of aromatic hydrocarbons are made of HASTELLOY alloy B because they must handle a reaction solution containing chlorides. The iron valves previously used leaked after less than one month of service, requiring frequent and costly replacement. Valves made of HASTELLOY alloy B do not corrode in this service and, therefore, last indefinitely.

HASTELLOY alloy B has many other applications in the production of aromatic hydrocarbons, where parts are subjected to severe conditions of chemical corrosion. It is particularly well suited for such equipment as pump parts, pipes, coolers, and tubes, because it stands up under such severely corrosive media as boiling hydrochloric acid and wet hydrochloric acid gas. It also has high resistance to sulphuric and phosphoric acids, and retains its high strength even at elevated temperatures.

For further information about this material, write for the booklet "HASTELLOY High-Strength Nickel-Base Corrosion-Resistant Alloys," Form 3361.

HAYNES STELLITE COMPANY

Unit of Union Carbide and Carbon Corporation



General Offices and Works, Kokomo, Ind.

Chicago—Cleveland—Detroit—Houston—Los Angeles—New York—San Francisco—Tulsa

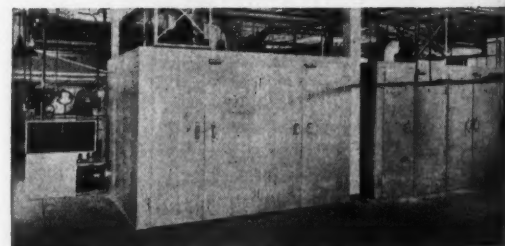
HIGH-STRENGTH NICKEL-BASE ALLOYS FOR CORROSION RESISTANCE



The word "Hastelloy" is a registered trade-mark of Haynes Stellite Company.

When inquiring specify CP A5184 . . . see information request blank, pgs. 2-3

PLAN NOW for BETTER FINISHING



with **KIRK & BLUM**
INDUSTRIAL OVENS

In the fast-developing "battle for markets," competition will be keener than ever before in our history. What of your product finishing equipment . . . will it be able to carry on under the increased load, meet new and higher finishing standards, enable you to take utmost advantage of your opportunities?

The Kirk & Blum Engineering Staff is thoroughly grounded in the planning, design and erection of complete finishing equipment. These systems are guaranteed to increase production, reduce fuel and labor costs, conserve floor space, promote maximum safety.

Send for Booklet "Industrial Ovens"

The KIRK & BLUM Manufacturing Co.

An Organization of Engineers and Mechanics
2833 SPRING GROVE AVE. CINCINNATI 25, OHIO

When inquiring specify CP A5186 — see handy form pages 2-3

Standard Boilers Have Capacity From 6000 to 17,000 lbs.

Water cooled furnace design helps to maintain high efficiency over wide load range

Uses — These standardized boilers meet a requirement in the power, process and heating fields where steam generating capacity from 6000 to 17,000 lbs. of steam per hour is needed.

Features — Water cooled furnace is particularly successful where it is necessary to maintain uniformly high efficiency over a wide range of load conditions. Features of the design are simplicity of maintenance, minimum number of parts, and ability to operate considerably above rated capacity. Heat applied to steam delivery tubes and steam delivery above water level are intended to insure very dry steam and freedom from priming.

Description — Designated as type M boilers, they are made in two standard tube lengths, 10 ft. and 12 ft. expanded into sinuous electric steel sectional headers. Furnace widths of 3'-9" to 9'-0" are available, depending on whether four, five, six, seven, eight, nine or ten header sections are used. All boilers have 48 inch diameter welded, x-rayed, and stress relieved steam drums built to various pressure standards ranging from 160 to 320 pounds. Overall setting height is 17'-5 1/4" for all units. Designed for automatic firing, present combustion chamber dimensions provide for highest efficiency possible with oil or gas burners. Erection at the user's location is facilitated by shop assembly of a considerable portion of the parts, including the header sections with built-in refractory filled cast iron baffles. Installation is further simplified by provision of complete structural steel framing to receive standard dimension refractory and insulating materials.

SPRINGFIELD BOILER CO., Dept. CP, 1903 E. Capitol Ave., Springfield, Ill.

When inquiring specify CP A5187 — see handy form pages 2-3

★

Colony Counter Has Improved Design

Correct illumination provided to facilitate counting

Uses — Of interest to food and other allied industries this unit is useful where mold count work is essential.

Features — Styled to conform with modern laboratory instruments, cool to operate, the unit is sturdily built. The scientifically designed reflector provides illumination free from glare, uniform over the entire field and adequately bright to reveal and distinguish small colonies from other structures.

Description — For focusing purposes the 4 1/2" lens is mounted on a sliding rod and has the standard 1.5 x magnification specified by the American Public Health Association. It is so positioned that errors from parallax are avoided. If required additional magnifications can be provided by the addition of an auxiliary lens. Wolffhiesel, Steward and Jeffers guide plates are available. Centering screws are provided so that a petri dish may be positioned when circular ruled plates are used.

AMERICAN OPTICAL CO., Dept. CP, Buffalo 11, New York.

When inquiring specify CP A5188 — see handy form pages 2-3

JULY-AUGUST, 1946

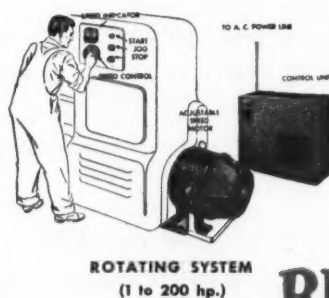
How we can help you meet the greatest challenge industry has ever faced

WAGES go up and up, along with other costs. Prices lag behind. Some relief may come from outside sources but, primarily, the problem of pushing production *up* and holding costs *down* must be solved by each individual company for itself. Here lies the greatest challenge industry has ever faced.

One sound answer is increased production through the use of more efficient machinery and methods. And this is where we feel confident we can help you. We have yet to find the industry where Reliance V*S Drive cannot improve the quantity and quality of output, while lowering costs.

A Reliance Application Engineer will survey your operations, then show you where and how you can benefit most through use of V*S—the All-electric, Adjustable-speed Drive, operating from A-c. Circuits. Just phone the nearest Reliance office or write us direct for Bulletin 311.

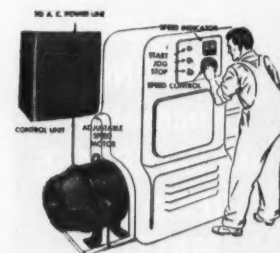
RELIANCE ELECTRIC & ENGINEERING CO.
1067 IVANHOE ROAD • CLEVELAND 10, OHIO
Branch Offices in Principal Cities



ROTATING SYSTEM
(1 to 200 hp.)



Reliance V*S Drive provides unlimited flexibility of machine operation. Starting, stopping, speed changing, reversing, maintenance of proper tension and other controls are exercised automatically or manually from nearby or remote stations.

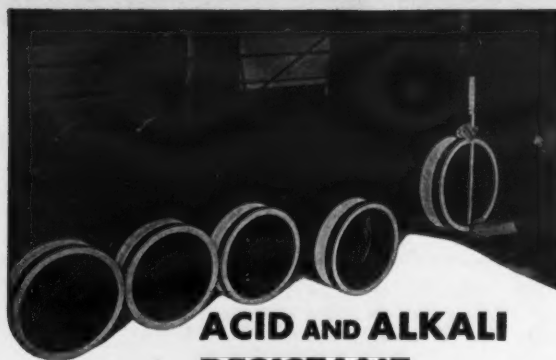


ELECTRONIC SYSTEM
(1 to 5 hp.)

RELIANCE A-C & D-C MOTORS

" MOTOR DRIVE IS MORE THAN POWER "

When inquiring specify CP A5189 . . . see information request blank, pgs. 2-3



ACID AND ALKALI RESISTANT

HAVEG is a molded plastic, which is completely resistant to most acids or alkalis. Its chemical resistance is uniform throughout its entire mass. It is not a lining or coating.

HAVEG Chemical Equipment is made in standard tanks, pipe, towers, fittings, valves, fume duct and related items, also a variety of special equipment.

Send for Bulletin F3 which gives complete design, engineering and application data.



When inquiring specify CP A5190 — see handy form pages 2-3



**The ONLY
Successful
OIL and GREASE
RESISTANT
MATTING
Neo-Cord
Counter-Tred**

Contains no rubber
Made with Dupont Neoprene

AMERICAN Counter-Tred MATTING

A tough, durable, long wearing rubber and cord matting with a resilient non-slip surface that affords safety in wet or slippery areas. Rugged bottom affords aeration and drainage. Easily handled for cleaning. Adheres to floor. $\frac{3}{4}$ " thick, 24" wide, any length.

AMERIFLEX

Flexible Hard

Wood Link Matting
Links are held on galvanized steel springwire framework. Lies flat. Follows contour of the floor. Beveled edges. Can be rolled or folded.

**TUF-TRED SUPERIOR GRADE
TIRE FABRIC MATTING**
for long wear, economy, safety.

**SOLID PLASTIC FRICTION
MATTING**
RUBBER LINK MATTING
SAFETY STAIR TREADS AND
RUNNERS

**PERFORATED AND CROSS
CORRUGATED MATTING**
SPONGE RUBBER MATTING
STEEL MATTING

Write for prices and folder,
"A Mat For Every Purpose",
which describes matting for
promoting safety, providing
comfort, reducing fatigue and
furthering sanitation.

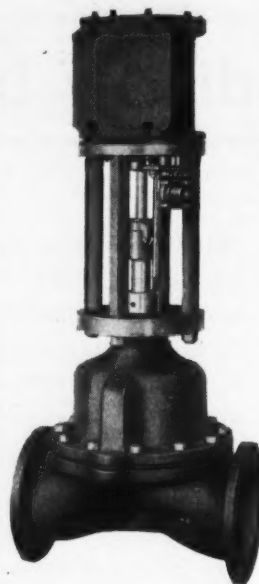
**AMERICAN
MAT CORPORATION**
"America's Largest Matting
Specialists"
1798 Adams Street
Toledo 2, Ohio.

When inquiring specify CP A5191 — see handy form pages 2-3

Production

Diaphragm Valve Has Remote Control and Throttling Action

Pneumatic controls permit open and close or throttling action. Available in 4" to 12" sizes



Pneumatic cylinder operated
diaphragm valve

Uses — Pneumatic cylinder operated diaphragm valves permit remote flow control of paper and pulp mill stock lines. The valves are equally applicable in chemical and process plants for flow control of acids, caustics, slurries and many other fluids.

Features — The addition of this pneumatic cylinder and control accessories provides for remote operation of the diaphragm valve. Smooth throttling action over a wide range is possible.

Description — As a manually operated unit the diaphragm valve has been widely used for many years. In this valve, the working parts in the bonnet are isolated from the flow preventing contamination of material and corrosion of working parts. Absence of stem packing eliminates a common maintenance problem and

makes the valve especially adaptable to air control because the free action does away with sticking, bunting and over-running. The valve is leakproof because the diaphragm will seat tightly, molding itself to the weir even in the presence of small foreign particles or irregularities in the weir itself. The flow is streamlined to minimize pressure differential across the orifice. It is claimed that it is almost impossible for the valve to become clogged. The only maintenance of the valve itself required is occasional replacement of the diaphragm, frequency depending upon service, and this is easily accomplished by removing the four bolts which fasten the bonnet to the body. The unit is readily adapted for instrumentation and use with positioning devices. An auxiliary air tank is included in the system to provide automatic valve shut off in the event of failure of the main air supply. Valve sizes from 4" to 12" are available with this type of control. Details may be secured on request.

HILLS McCANNA CO., Dept. CP, 3025 N. Western Ave., Chicago 18, Ill.

When inquiring specify CP A5192 — see handy form pages 2-3

Bottle Oiler Has Vibrating Feed Rod

*Lucite reservoir is unbreakable. Available in
sizes from $\frac{1}{2}$ to 32 ounces*

Uses — Used on plain sleeve bearings, line shaft bearings, jack shafts, spindles where light or medium bodied oils are

CASE HISTORY No. 6

One in a series of factual experiences of a group of American manufacturers with Multi-wall Paper Bags.

COST COMPARISON

(Computed from cost figures of year 1943 using 25 acre production as average per harvesting unit per 12 hour day and an average barley yield of 20 bags an acre.)

	100 Lb. Jute Bags	Multi-wall Paper Valve Bags
Bag Cost per M.	\$245.00	\$87.18
Bag Cost .....	.245	.0871
Bag Cost Per Acre (20 bags per acre)	4.90	1.7420
Labor Cost Per Acre ...	1.65	.7332
Total Bag and Labor Cost Per Acre	\$ 6.55	\$ 2.4752
Saving Per Acre Paper Over Jute		4.07

DETAILS OF LABOR COSTS

Jute Bags	Per Day
1 Harvester Operator	6.50
1 Swamper (Filling and preparing bags for sewing)	4.00
2 Sack Sewers at \$5.50	\$11.00
1 Tractor Driver	4.75
Sack Bucking (at \$.60 per acre)	15.00
(Picking up scattered sacks from field)	
Total Labor Cost Per Harvester ..	\$41.25
Labor Cost Per Acre Jute Bags	\$ 1.65

Multi-wall Paper Valve Bags	Per Day
1 Harvester Operator	\$ 6.50
$\frac{1}{2}$ Truck Driver (Transports bulk trailers for 3 harvesters) at \$4.75	1.50
1 Man Packing	5.50
1 Tractor Driver	4.75
Total Labor Cost Per Harvester ..	\$18.25
Labor Cost Per Acre Paper Bags .....	.7332

1946 Crop (Estimated)

3,500 Acres Wheat
3,100 Acres Flax
6,600 Acres Total

\$4.07 Saving per acre paper over jute
\$26,862 Total saving paper over jute 1946 crop

ANOTHER
RECORD

IN ST. REGIS PACKAGING EFFICIENCY AND FLEXIBILITY

California Grain Grower Saves \$4.07 Per Acre with Multiwalls

This sixth in a series of Multiwall Case Histories tells how Murietta Farms in California made drastic savings in the packaging of barley, wheat and flax by changing over to St. Regis Multiwall Paper Valve Bags and Machine Packaging.

When jute bags became scarce in 1942, Mr. Giffen, operator of Murietta Farms, investigated the advantages and economies of Multiwall Bags and installed a St. Regis system tailor-made for his requirements — here are the highlights:

66% SAVING IN BAG COSTS: Multiwalls cost only 8½¢ each as contrasted with 24½¢ for burlap bags. In addition, Multiwalls, with their multiple layers of tough kraft paper, offered positive protection against the elements.

56% SAVING IN LABOR COSTS: By installing gravity-type packers and using Multiwall Paper Valve Bags, it was

possible to eliminate the men formerly required to sew fabric sacks. In addition, the system made it possible to fill the bags at a central spot . . . eliminating the tiresome and costly collecting of sacks scattered over the fields.

MULTIWALLS SAVE CROP STORED IN OPEN FOR 6 MONTHS: During the harvesting seasons of 1944 and 1945, it was necessary to leave the filled Multiwall bags in the open for six months . . . from the end of harvesting until late in November. The grain in the Multiwalls remained in perfect condition. Mr. Giffen estimates that between ⅓ and ½ of the crop would have been lost through exposure if the grain had been packed in burlap.

EVEN GREATER SAVINGS IN '46: Figures for the 1946 crop indicate that Mr. Giffen will effect a saving of approximately \$26,862. This is based on an average saving of \$4.07 per acre through the use of paper instead of jute in the packaging of 3,500 acres of wheat and 3,100 acres of flax.

Multiwall Paper Valve Bags being filled from spouts on trailer.

Filled bags stacked at edge of field; no protection against the elements supplied or required.



MULTIWALL

ST. REGIS SALES CORPORATION

(Sales Subsidiary of St. Regis Paper Company)

NEW YORK 17: 230 Park Ave. CHICAGO 1: 230 No. Michigan Ave.
ST. LOUIS 2: 2601 O'Sullivan Bldg. SAN FRANCISCO 4: 1 Montgomery St.

Birmingham Boston Cleveland Dallas Denver Detroit
Franklin, Va. Los Angeles Nazareth, Pa. New Orleans
St. Kansas City, Mo. Ocala, Fla. Oswego, N. Y. Seattle Toledo

CANADA: St. Regis Paper Co. (Can.) Ltd., Montreal, Vancouver.

When inquiring specify CP A5193 . . . see information request blank, pgs. 2-3

JULY-AUGUST, 1946

Production

satisfactory. Extremely suitable for dusty surroundings such as on grinding machines to prevent dust, dirt and chips from getting into oil holes.

Features — Unit is automatic and economical in operation. It is refilled without removal from its installation, and is furnished in an unbreakable construction in a wide range of sizes.

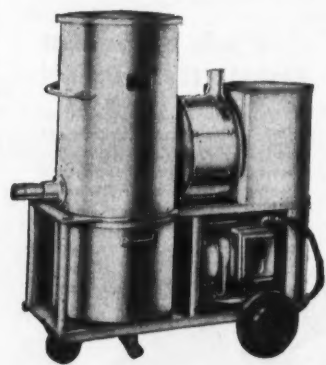
Description — Oil is fed from an airtight reservoir through an oilport to a feed rod which slides freely in a closely fitted hole in the case and rides lightly on the journal. A slight vibration is caused by the directional drag of the rotating shaft on the feed rod, resulting in a pumping action. As the bearing becomes warm, heat is conducted through the rod to the reserve oil, causing the air in the reservoir to expand. The pumping and thermal action forces oil to creep slowly down the feed rod to the bearing. Since the feed rod is lubricated where it rides the shaft, there is no wear on the shaft. Then the shaft is not in motion, vibration of the feed rod ceases, bearing cools down and flow of oil stops. Oiler is made of brass and lucite and may be permanently attached to bearings by pipe thread connection. A filler cap makes the reservoir air-tight, but permits each refilling. Standard capacities are ½, 1, 2, 4, 8, 16 and 32 ounces, having ⅛", ¼", ⅜" or ½" pipe thread. Complete details for all applications will be furnished on request.

OIL RITE CORP., Dept. CP, 3405 S. 13th St., Milwaukee 7, Wisc.

When inquiring specify CP A5194 — see handy form pages 2-3

Portable Industrial Vacuum Cleaner is Compact

Has 5 HP motor — develops 83 inches of vacuum — weighs 550 lbs.



Industrial vacuum cleaner

Uses — In industry where an easily moved — portable unit is necessary.

Features — Improved design promotes efficient cleaning and better removal or recovery of industrial materials.

Description — Dimensions of the unit have been reduced and a proportionate reduction in weight from 780 lbs. to 550 lbs. has been effected. In changing the motor mounting two castings

are eliminated, placing the vacuum producer directly in line with the dust tank, thus increasing vacuum efficiency. Capacity of the dirt collector is 3 cubic feet which provides for additional container capacity. Filter unit is accessible and easy to agitate. Filter area is increased to 3554 square inches and performance has been increased from 76 inches of vacuum to 83 inches. Complete information may be secured on request.

INVINCIBLE VACUUM CLEANER MFG. CO., Dept. CP, Dover, Ohio.

When inquiring specify CP A5195 — see handy form pages 2-3

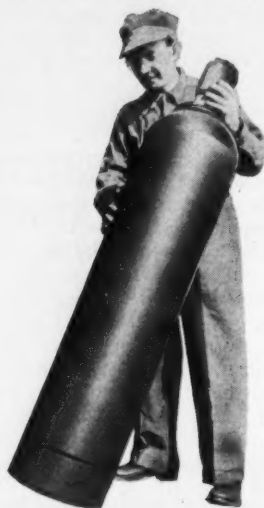


SEAMLESS CYLINDERS

... Strong, Durable, Lightweight

Strong, durable and lightweight, Hackney Cylinders have been constructed to assure lowest transportation costs, full protection to product, ease of handling and utmost resistance to transportation and handling abuse. The Hackney cold drawing process makes every cylinder uniform in thickness and temper.

In using Hackney Cylinders you are taking advantage of Pressed Steel Tank Company's advanced heat-treating methods, thorough testing, careful selection of raw materials and complete understanding of each requirement. Write today for full details.



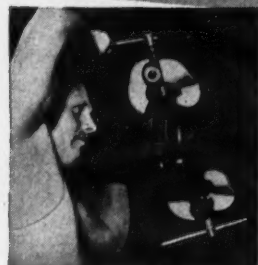
PRESSED STEEL TANK COMPANY

Manufacturers of Hackney Products

1463 S. 66th St., Milwaukee 14 1387 Vanderbilt Concourse Bldg., New York 17
208 S. LaSalle St., Room 2085, Chicago 4 568 Roosevelt Bldg., Los Angeles 14
235 Hanna Bldg., Cleveland 15
Containers for Gases, Liquids and Solids

When inquiring specify CP A5196 — see handy form pages 2-3

FLANGE JACKS



...for safe, easy and fast gasket replacement!

Operating with a minimum of effort — vital in tight, cramped quarters — **FLANGE JACKS** exert tremendous pressure smoothly and evenly. There is no shock along the pipe line, bolt holes are maintained in perfect alignment, and flange faces cannot be damaged.

FLANGE JACKS eliminate long costly shut-downs.



TAKES A FRACTION OF THE USUAL TIME!

Detailed information concerning this exclusive tool will be sent promptly on request. Write Dept. W, or contact your nearest distributor.

T. G. PERSSON COMPANY
224 GLENWOOD AVE., BLOOMFIELD, NEW JERSEY

When inquiring specify CP A5197 — see handy form pages 2-3

Page 120

Production

High Pressure Grease Gun Holds 30 lbs. of Lubricant

Has automatic venting device, which relieves pressure in hose assembly when not in use permitting lubricant to drain back to container

Features — This high pressure grease gun has a positive automatic venting device in the pump tube assembly which operates instantly when the pump handle is raised momentarily to topmost position. This relieves pressure in the hose assembly permitting lubricant to drain back into the container, saving lubricant and eliminating dripping when coupler is disengaged from the grease fitting. Venting device is wear proof and has no moving parts or springs.

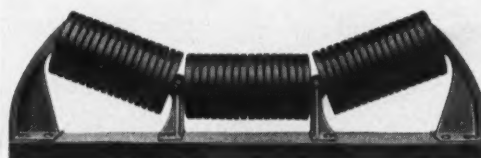
Description — Unit is all steel construction and holds 30 lbs. of lubricant. Is easy to operate — up and down action — no gears or crank. Quickly refilled — full open top provides maximum filler opening. Top easily removed by merely loosening two thumb-nut fasteners. Container design permits use of follower plate when pumping heavy lubricants. Container and lid are made of heavy-gauge steel. Container has reinforced bottom. Footstep is welded across bottom of container, providing added protection and permitting ease of operation in uneven surfaces. Convenient to carry — sturdy handle for ease in lifting and carrying. The handle is equipped with holder for coupler; keeps coupler and hose assembly off the ground and out of way when not in use. Complete details on this device will be sent on request.

THE LINCOLN ENGINEERING CO., Dept. CP, 5701 Natural Bridge Ave., St. Louis 20, Mo.

When inquiring specify CP A5198 — see handy form pages 2-3

Impact Cushioning Idler Lengthens Conveyor Belt Life

Idler has greater impact absorption capacity. Grooving permits greatest possible deflection under impact



No. 35 cushion idler

Uses — This impact cushioning troughing idler is used under the loading point for belt conveyor systems.

Features — Idler will protect and greatly lengthen the life of the conveyor belt. Tests show greater impact absorption capacity. Grooving permits greatest possible deflection under impact without impairment of roll stability. The momentary displacement of the rubber instantaneously absorbs the energy of the blow, thus dampening the impact force.

Description — Each roll of the idler consists of a rubber cylinder vulcanized directly to the assembly tube. The cylinder has multiple grooves moulded into it . . . deep primary grooves for maximum cushioning to guard against

INDUSTRIAL PLANTS
CHEMICAL PLANTS
FOOD PLANTS
Your PLANT!

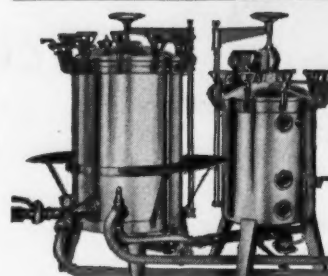
THERE IS NO OTHER
Filter
LIKE THIS

The Stainless Steel

KLEIN
IDEAL DIATOMACEOUS
EARTH FILTERS AND
SLURRY FEEDERS

Many important and exclusive improvements and radical innovations have been incorporated in the precision-built Klein Ideal Diatomaceous Earth Filters and Feeders. Constructed of stainless-steel they utilize a new exclusive filter principle that will bring you a new high in maximum efficiency, minimum maintenance and product uniformity.

WRITE TODAY for full information and the latest Klein Bulletin.



Illustrated are the radically different Klein Ideal Filter Feeds with discharge tubes that practically eliminate the danger of clogging.

ESTABLISHED 1909

KLEIN

FILTER & MANUFACTURING COMPANY

1225-29 SCHOOL STREET • CHICAGO 13, ILLINOIS

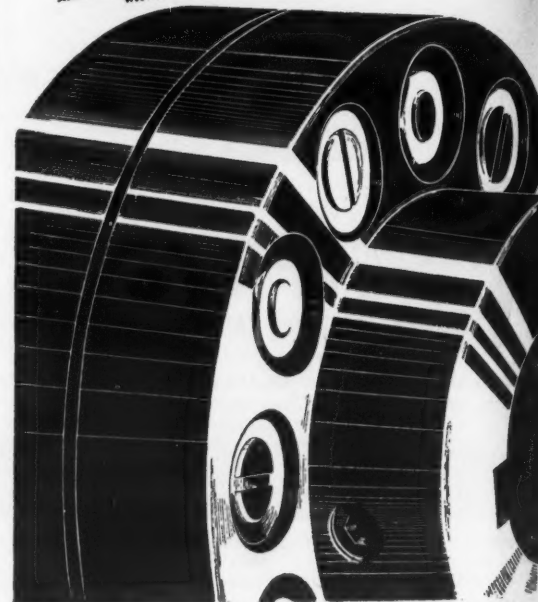
When inquiring specify CP A5199 — see handy form pages 2-3



FLEXIBLE COUPLINGS

AJAX FLEXIBLE COUPLING CO. INC.
WESTFIELD, N. Y.

Safeguard your direct-connected machines against unavoidable misalignment with the positive, reliable drive of Ajax Flexible Couplings. Write for Data Book.



When inquiring specify CP A5200 — see handy form pages 2-3

CHEMICAL PREVIEW

Production

carcass rupture . . . and shallow secondary grooves to provide surface softness for protection against belt cover abrasion. For all loading conditions, the cushion idler should be used to support the belt directly under the loading point. It is recommended that three to four units be used, spaced at one-half the normal idler spacing. Each idler is equipped for high pressure grease lubrication and is regularly furnished with a hydraulic type fitting. Additional information may be secured on request.

CHAIN BELT COMPANY, Dept. CP, 1600 W. Bruce St., Milwaukee 4, Wis.

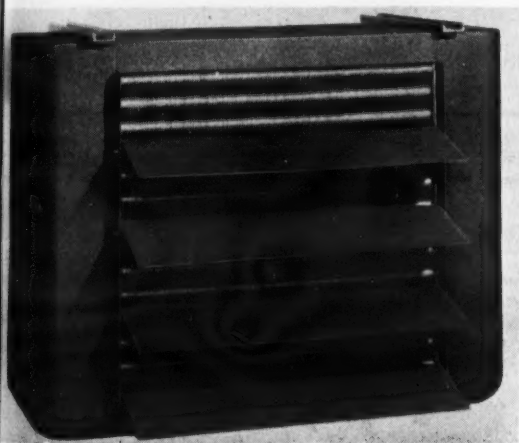
When inquiring specify CP A5201 — see handy form pages 2-3

Low Temperature Cooling Unit Handles Various Refrigerants

Louvers are independently adjustable

These overhead blower units are suitable for low temperature cooling problems and are recommended for use with such refrigerants as ammonia, methyl chloride, sulphur dioxide, freon, brine, glycerine and prestone.

This line of blowers provides for different velocities of air speed to supply the correct volume of air



Low temperature unit suitable for many cooling jobs

for various cooling jobs. Coils are designed so that outlet velocities of the refrigerants are well within safe limits. All tubes and bends are of full area — no obstructions. Louvers are individually adjustable thus permitting a controlled flow of air for proper and uniform air distribution. Description — Coils for sulphur dioxide, methyl chloride, freon and anti-freeze are made of tinned copper with aluminum fins. No soft solder is used on any joint. Ammonia and brine coils are seamless steel with steel fins, all hot galvanized after fabrication. Tubes are 3/8" O.D. with .035" wall placed on 3 1/2" centers. Fins are .015" thick. Housings are made of steel, bonderized and painted gray. Sides and bottom are insulated to prevent condensation. All coils are tested at 400 lbs. air pressure under water and later dehydrated. A bulletin on this equipment is available from the manufacturer. It gives data on "How to Select refrigerants, coils — unit sizes and other information."

EMPE CO., Dept. CP, 340 N. Sacramento Blvd., Chicago 2, Ill.

When inquiring specify CP A5202 — see handy form pages 2-3

JULY-AUGUST, 1946



**HERE'S A PLUG VALVE
THAT STAYS "ON STREAM"**



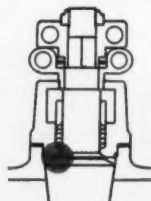
**Worn Stem Packing
Safely, Quickly Replaced
UNDER PRESSURE**

**HAMER
GLAND - PACKED
PLUG VALVE**

There are many places in refineries, process plants and on ship board for this successful Hamer Plug Valve. Look at the sketches—see how easily and safely the stem packing can be changed without shutting down the line. Then send for the Hamer Catalog which gives engineering data on this and other Hamer products.

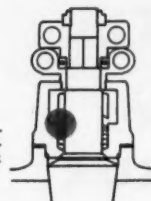
RAISE PLUG TO SEAL BONNET

Turning plug adjusting nut to LEFT raises plug, brings lapped shoulder of plug and bonnet into tight sealing contact.



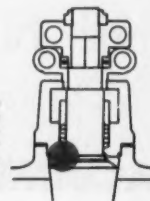
RAISE GLAND TO REPLACE PACKING

Only two nuts to remove. Plenty of working room for quick packing replacement.

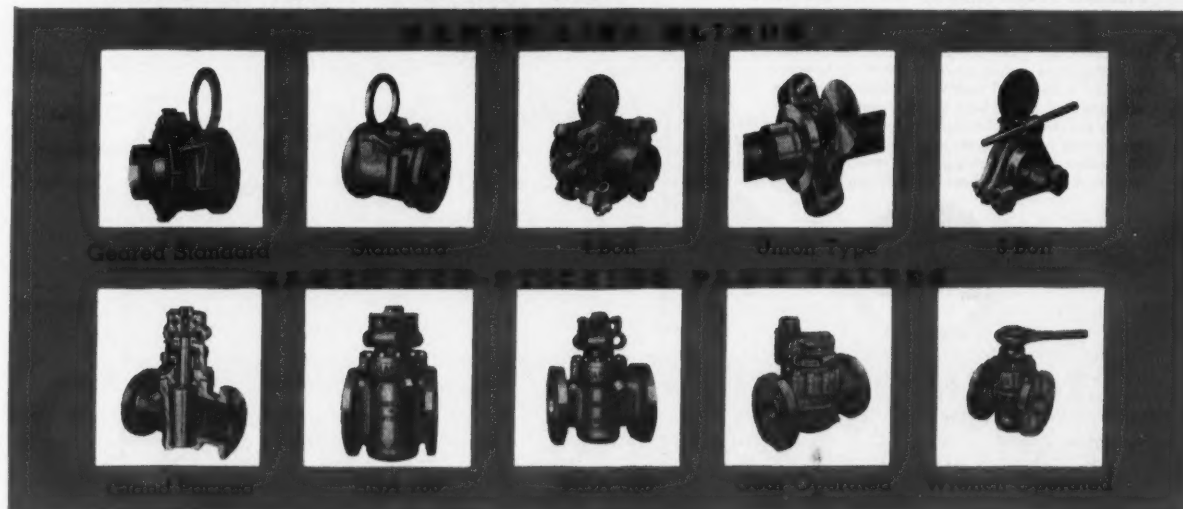


LOWER PLUG BY TURNING NUT TO RIGHT

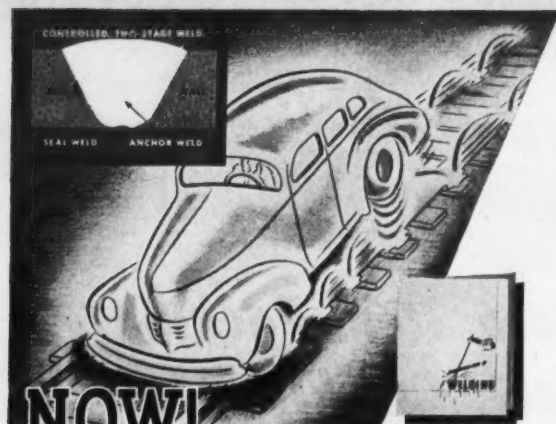
This returns plug to proper adjustment in body, and nut maintains the adjustment for positive turning of plug under all conditions.



HAMER OIL TOOL CO. 2919 Gardenia Ave., Long Beach 7, Calif.



When inquiring specify CP A5203 . . . see information request blank, pgs. 2-3



NOW! NOTHING LIKE THIS INSIDE OF BUTT WELDED JOINTS

Exaggerated, yes; we're merely trying to emphasize the effect of backing rings on flow in butt welded pipelines. And if the ends of the pipe lengths are recessed to lessen these "humps," pipe strength is sacrificed. And if no rings are used, protrusions of weld metal produce the same "humps" again, but they are rough-jagged, except where the patented Westport Method of Controlled, Two Stage Welding is used. This produces a pipe contour, smoother on the inside than on the outside, with maximum bondage and strength. Our bulletin "Something New in Welding" tells the complete story. Write for it today. And remember, while our shop pre-fabricated piping can be made with any type of joint, we believe you'll prefer and specify the Westport, after you read our bulletin.

WESTPORT JOINT

MADE WITHOUT BACKING RINGS BY
THE MITCHELL WESTPORT METHOD

W. K. MITCHELL & CO., INC.
2946 ELLSWORTH STREET
PHILADELPHIA 48, PA.

MITCHELL
SINCE 1899
PIPING FABRICATORS AND CONTRACTORS

When inquiring specify CP A5204 — see handy form pages 2-3

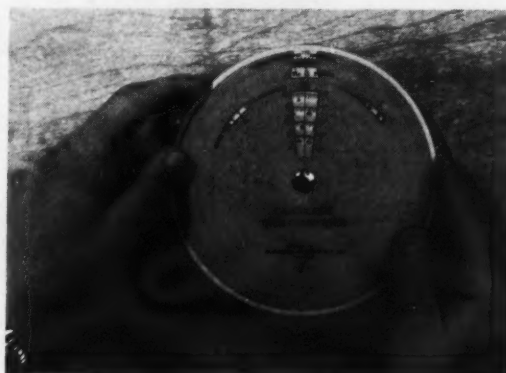
Production

Circular Inch Converter Shows Decimal and M.M. Equivalents

Decimal equivalents graduated in .001 inch.
Metric equivalents graduated in .1 mm.

Uses — This device converts fractions of an inch into decimals or millimeters, and corresponding U. S. standard gage numbers and drill numbers are shown.

Features — In this convenient pocket-size instrument, the



Calcaide slide rule in use

scales have been arranged for greatest user convenience and to prevent misreading. Parallax error is virtually

Let Toughy "Clean Up"

ON THOSE TUBES FOR YOU



Tough, rugged Airetool Tube Cleaners "clean up" on those "hard" jobs. They are rough and ready — they can dish it out and take it too — yet they maintain a split hair precision. That's because there is an Airetool cleaner built especially for the job.

Airetool's powerful motors, with exclusive Balanced Rotor and Power Seal, can be loaded down to 50 rpm without stalling... and pick up quickly after the load is lifted.

Airetool's NEW FORM CUTTERS do not track and damage tubes.

Write to Airetool Manufacturing Co., Dept. 500, Springfield, Ohio, for helpful bulletins on use and care of cleaners and expanders.



Don't forget Airetool Expanders — Airetool makes the RIGHT expander for every tube rolling job.

AIRETOOL MANUFACTURING COMPANY

When inquiring specify CP A5206 — see handy form pages 2-3

THE NEW ERTEL

"Pneumo-Vac"

VACUUM BOTTLE FILLER

FILLING SPEED MEASURED IN QUARTS—
50 BOTTLES PER MINUTE

The new Ertel "Pneumo-Vac" Vacuum Bottle Filler is designed to reduce physical effort. It is operated by a balanced foot valve which allows the operator full use of both hands. Dripping is positively prevented while unit is in operation. Liquid filling height can be accurately and quickly regulated. Fully illustrated bulletin giving floor area, bottle heights, etc., is available without obligation. Write for copy.

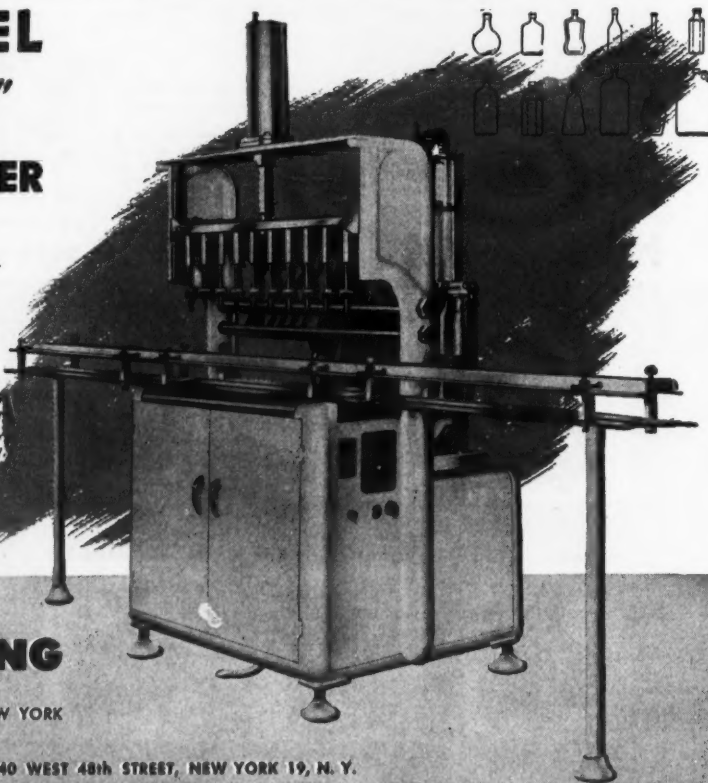


ERTEL ENGINEERING
CORPORATION

KINGSTON

NEW YORK

NEW YORK CITY SALES OFFICE AND SHOWROOM: 40 WEST 48th STREET, NEW YORK 19, N. Y.



ALLOY Stainless Fabrication



If it is to be built of stainless, likely we can do it for you — economically and well.

A quarter-century of stainless fabricating experience is yours in every job. Get an Alloy quotation, and ask for Bulletin CP 30.

ALLOY Manufacturing Co., Inc.

30th and Brereton Ave.,

Pittsburgh 19, Pa.

When inquiring specify CP A5207 — see handy form pages 2-3

When inquiring specify CP A5205 . . . see information request blank, pgs. 2-3

Production

eliminated, as all graduations are reproduced on facing surfaces and protected with a thin plastic lamination.

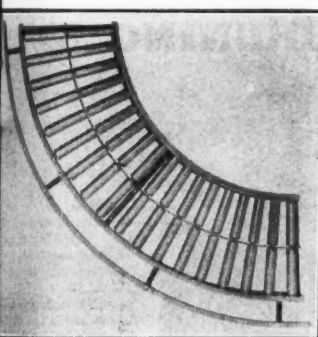
Description — The inch converter is only $5\frac{3}{4}$ inches in diameter, yet decimal equivalents are graduated in .001 inch and can be estimated to an accuracy better than one-thousandths ($1/5000$) of the range. Likewise, metric equivalents are graduated in .1 mm. and can be estimated to .01 mm. Range is from 0 to 100 mm. U. S. standard sizes from No. 3 through No. 30 are provided. Drill numbers from No. 1 through No. 60 are also shown. The device is precision manufactured from tough, non-warping, non-inflammable plastic which is unaffected by moisture, perspiration or ink. It can be easily cleaned with a damp cloth. Clear, concise directions are printed on the back. Complete details are available on request.

AMERICAN HYDROMATH COMPANY, Dept. CP, New York, N. Y.

When inquiring specify CP A5208 — see handy form pages 2-3

"Packaged" Gravity Roller Conveyor Handles Many Articles

Lightweight — standard units offer flexibility for loads up to 200 lbs.



Light weight gravity roller conveyor

Uses — A "packaged" line of gravity roller conveyors is the result of a thorough research program. These conveyors are used for the handling and transportation of cartons, bales, packages, boxes and crates in the food and chemical processing fields.

Features — Standard units meet all the usual requirements in the gravity conveyor field.

Combinations of several straight and curved runs offer flexibility. Rollers mounted on full-length shafts reduce wear and prevent spreading of frame, especially under impact loads. Since the rollers are set slightly above the level of the tops of the side rails, these units will handle packages wider than the conveyor section.

Description — These gravity conveyors are fabricated of sheet metal products and are therefore light weight in design. Trestle supports are well braced for maximum weight, yet light enough to be easily moved. The small retainer channel under the top flange of the frame rails covers the ends of the roller shafts and provides a safety feature. This also eliminates the need for cotter pins. Rollers are spaced on 4" centers which will support the majority of packages on a minimum of three rollers. All rollers are fitted with ball bearings engaged in the ends of the tube rollers by adapters to insure alignment of the roller shafts. Additional information may be secured by writing the manufacturer.

LYON METAL PRODUCTS, INC., Dept. CP, Aurora, Ill.

When inquiring specify CP A5209 — see handy form pages 2-3

JULY-AUGUST, 1946

ON THE INSIDE AND OUTSIDE, TOO



You've selected Alcoa Aluminum for that processing plant because aluminum gets along well with the materials to be handled. Thus, you're assured of longer life for the equipment and higher quality in products. Why not go all the way and employ Alcoa Aluminum structurally?

Those stairs and their supports, the grating for walkways, the railings—made of Alcoa Aluminum, they'll be highly resistant to corrosive attack.

They'll stay safe. Maintenance costs will be less.



JUST PUBLISHED

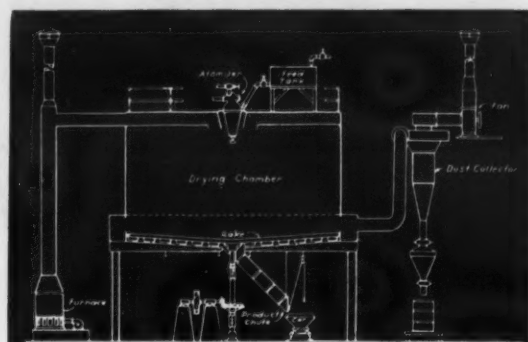
This booklet, "Utility Railings of Alcoa Aluminum Pipe", contains many detail drawings and lists Alcoa fittings and pipe for railings. May we send you a copy?

Aluminum Standard Structural Shapes and Aluminum Standard Pipe are carried in stock by Alcoa distributors everywhere. Aluminum grating is manufactured by a number of companies. To get in touch with them, or for data on Alcoa products, call the nearby office of ALUMINUM COMPANY OF AMERICA. Or address your inquiry to Alcoa, 1731 Gulf Building, Pittsburgh 19, Pa.

ALCOA ALUMINUM



When inquiring specify CP A5210 . . . see information request blank, pgs. 2-3



"INSTANT DRYING" A Simplified, Low-Cost System for Drying Chemicals

Real-life tests in industry have been demonstrating the advantages of the modern INSTANT DRYING unit. For instance, the manufacturer of a chemical widely used in industrial products brought it to the Instant Drying Laboratories for test. The results were astounding! Drying capacity was greatly expanded. The equipment was installed and the original unit has been in busy operation on a 24-hour schedule . . . with production even larger than the laboratory tests had shown! The special working features (patented) of INSTANT DRYING SYSTEMS are paying many dividends. This trouble-free and diligent worker demands only a minimum of labor and attention. Less power and a smaller connected load are required. Write to us on your drying problem. We shall answer your questions and send you detailed literature on the INSTANT DRYING unit.

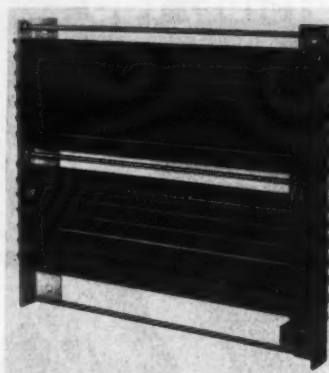
INSTANT DRYING CORP. 101 Park Avenue
New York 17
Testing and Research Laboratories at Poughkeepsie, N. Y.
Engineering by CLARK, MACMULLEN & RILEY, INC., NEW YORK

When inquiring specify CP A5211 — see handy form pages 2-3

Production

Electric Oven Heater Provides High Heating Capacity

Unit is 33½" long, 28" high and 3" deep.
Rating 8 KW at 230 volts



Chromalox oven heater

assembly consists of fourteen high temperature chrome steel sheathed strip heaters, giving a combined rating of 8 kw. at 230 volts. End brackets of heavy sheet metal are punched to permit mounting to either walls or bottom of the oven. The strip heater elements are mounted in the end bracket at a slight angle to the mounting surface to

Uses — Developed for electrically heated ovens for temperatures up to 950 degrees.

Features — Design provides a high heating capacity in a small space. Heating elements terminals are centralized at one end of the assembly, and all electrical connections are brought to a single enclosed terminal box to simplify wiring.

Description — As-



LIST PRICE
ONLY
\$3.75

MAXIMUM VISIBILITY..

In a NEW 5-Inch Pocket Slide Rule

The graduations on this new Bruning 5-inch Pocket Slide Rule will not lose visibility through use. To facilitate reading, graduations and numerals of the C-I scale are in red. In addition, A, B, C, D, K, S, L and T scales make this slide rule an instrument suited for every type of service. Beveled edges bear graduated scales in both inches and centimeters. All-plastic in construction, the slide rule will not stick or bind because of atmospheric conditions — has remarkable dimensional stability. For full information, write Charles Bruning Company, Inc. 4706-14 Montrose Avenue, Chicago 41, Illinois.

BRUNING SINCE
1897

When inquiring specify CP A5213 — see handy form pages 2-3

SYNTRON

"Vibra-Flow"

VIBRATORY FEEDERS

With Rheostat Control of Material Flow



INCREASE MATERIAL HANDLING EFFICIENCY

—by permitting the operator to adjust the material flow to suit the capacity of crushers, grinders, belt conveyors, screens, etc.

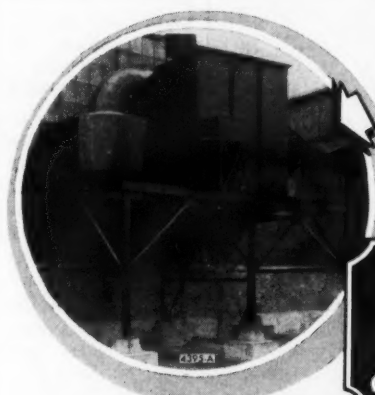
—by handling a range of materials from light fine powders to heavy ores.

Write for catalog literature illustrating and describing this equipment.

SYNTRON CO.

110 Lexington, Homer City, Pa.

When inquiring specify CP A5212 . . . see information request blank, pgs. 2-3



A cyclone and a Sly Dust Filter collect dust from grinding and sandblast operations on non-ferrous castings. The Sly Dust Filter is needed to collect completely all the fine dust which the cyclone could not catch.

**SLY
DUST
Collectors**

Get ALL the Dust... EVEN THE VERY FINE DUST

It is the fine dust which does the damage. The fine dust works its way into the bearings and other moving parts of machinery and settles widely over plant and neighborhood.

Only the fine dust is injurious to the human body. The coarser particles are stopped by the nose and mouth; only the very fine particles enter the respiratory system.

A combination of a Sly Dust Filter and a cyclone Collector is not uncommon. Often the cyclone does not collect the fine dust. Then a Sly Filter is added to get it all—by filtering the dust-laden air through cloth.

Sly Dust Collectors are not expensive—in first cost, maintenance, operation. Over 5000 installations. Ask for Bulletin 98 and tell us your problem.

THE W. W. SLY MFG. CO.
Pioneers and Leaders in Industrial Dust Control
4754 TRAIN AVENUE, CLEVELAND 2, OHIO

SLY

When inquiring specify CP A5214 — see handy form pages 2-3

CHEMICAL PREVIEW

Production

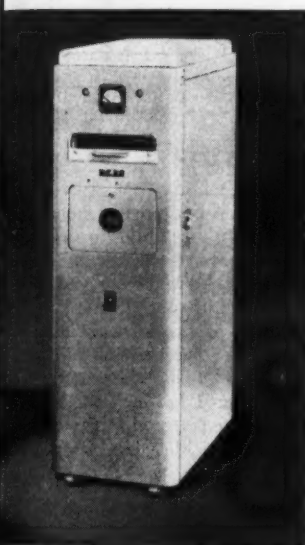
encourage air circulation if the heaters are mounted on the walls of the oven. For oven applications where forced air circulation is employed, the assemblies may be used as duct heaters with slight change in the position of the strips. Any number of these assemblies may be mounted in the air duct to increase the heating capacity. This oven heater is 33½" long, 28" high and 3" deep. Both the physical dimensions and the electrical rating may be altered to suit specific requirements. The heaters are furnished for single phase operation, only. Additional details are available on request.

DWIN L. WIEGAND CO., Dept. CP, 7517 Thomas Blvd., Pittsburgh 8, Pa.

When inquiring specify CP A5215 — see handy form pages 2-3

Small Dielectric Heater Has 1 KW Output

Unit is 16¼" wide — 27¼" deep — 52¾" high.
Will handle preforms up to 2½" thick



Model 18XO Thermex Red Head

Uses — This compact dielectric heating unit is designed for the plastics molding industry.

Features — Only 16¼" wide, it easily slips between presses and affords the advantages of larger models. It rapidly and uniformly preheats preforms thus shortening molding cycles, enhancing product quality and reducing the number of rejects. It also minimizes insert and pin breakage and helps to prolong the life of both the press and mold. Control is completely automatic. No starter button to push. No manual tuning is required.

Description — The unit has an output of 1 K.W. and will raise the temperature of approximately 1 pound of average general purpose material 170° F. in one minute. The steel cabinet is 16¼" wide, 27¼" deep and 52¾" high. The 10¼" x 13" preform tray, which serves as the bottom electrode, is an aluminum plate; the standard upper electrode is 7½" x 7½" stainless steel wire mesh. Spacing between the electrodes is adjustable from ½" to ¾". The drawer accepts preforms up to 2½" in thickness. Closing the drawer all of the way turns on the high frequency energy, which cuts off when the predetermined heating cycle is completed. Model 18 x 0 weighs 510 lbs. Complete information on this unit and other models ranging in capacity from 50 KW to 400 watts is available on request.

THE GIRDLER CORP., Dept. CP, Thermex Div., Louisville, Ky.

When inquiring specify CP A5216 — see handy form pages 2-3

JULY-AUGUST, 1946



ASPHALT MANUFACTURER UPS BAG-LOADING 100%

"... our former method of stapling required 8 men 8 hours to seal 500 bags. An Acme Silverstitcher, built specially to accommodate bags, was installed. The loading-sealing crew reduced to 7; wire stapling costs dropped 85%; output exactly doubled..."

USE THE CLOSURE COMBINATION THAT

DOUBLES PACKING OUTPUT

Silverstitch

BOX STITCHING WIRE

- Galvanized to resist rust, corrosion
- Always uniform in width and gauge
- Makes stronger, surer closures than other methods... unaffected by weather
- One-piece, continuous length, 5 and 10 pound coils... cuts threading time

Silverstitchers

BOX STITCHING MACHINES

- Adjustable, single pedal control
- Operate easily, smoothly, quietly
- Heavy duty construction... low power consumption... for long thrifty service
- Few moving parts... vital ones reversible... for lower maintenance costs

Sealing Shipping Containers by Stitching is Faster, Stronger and More Economical

ACME STEEL COMPANY

NEW YORK 7

ATLANTA

CHICAGO 8

LOS ANGELES 11

When inquiring specify CP A5217... see information request blank, pgs. 2-3

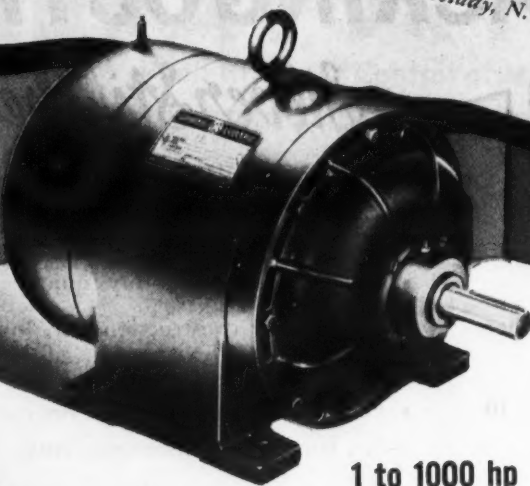
GENERAL ELECTRIC Announces...

NEW Totally Enclosed TRI-CLAD MOTORS

In 1940, G.E. introduced the Tri-Clad open motor—with emphasis on the feature that industry wanted most in a motor, protection. Since then, more Tri-Clads have gone into service than any other integral-horsepower motor.

Today, we are ready with a new line of Tri-Clad motors—totally enclosed, fan-cooled motors—built on Tri-Clad design principles in both standard and explosion-proof types.

We believe that these are industry's most dependable motors. They are designed specifically for use in many adverse atmospheres—in iron dust, outdoors, in hazardous areas, and chemical atmospheres. Their scope of application is as wide as the field of industrial motor use. Safeguarded against most sources of motor damage, their longer life and lower maintenance will make them economical motors for use on almost every job. General Electric Company, Schenectady, N. Y.



1 to 1000 hp

**COMPLETE ENCLOSURE
FOR PROTECTION
AGAINST DIRT,
DUST, AND WEATHER**

When inquiring specify CP A5218 . . . see information request blank, pgs. 2-3

Production

Atomizing Nozzle Designed for Wall Mounting

Operates at pressures ranging from 10 to 1000 lbs. per sq. in. Produces hollow cone type spray with uniform distribution

Uses — This nozzle may be mounted directly into the wall of processing or machine equipment. Atomizing nozzles wall mounted are ideal for such typical processing as spraying perfume into powder and shortening into flour. Another important application may be found in machinery where an atomized lubricant must be sprayed on high speed gear drive assemblies.

Features — In chemical processing involving the use of vats and mixers, nozzles of this type can simplify the work of setting up equipment for operation considerably.

Description — Wall mounted atomizing nozzles are made in a variety of materials including brass and stainless steel. The nozzle consists of three parts (1) body (2) cap with stainless steel orifice insert and (3) body with monel metal screen or strainer. Cap and core assemblies are renewable to minimize nozzle costs in operation. Water, oil, solvents and liquids with similar viscosities may be sprayed. Available in sixteen sizes, these wall mounted atomizing nozzles provide efficient operation at pressures ranging from 10 to 1000 lbs. per square inch. Atomization provided by hydraulic pressure will be found to be the finest possible for any given pressure. Spray is of hollow cone type, with uniform distribution of atomized liquid. Complete information on this nozzle is available by writing for information data sheet No. 2830.



Wall mounted atomizing nozzle

SPRAYING SYSTEMS CO., Dept. CP, 4037 W. Lake St., Chicago 24, Ill.

When inquiring specify CP A5219 — see handy form pages 2-3

Alloy Valves Have Long Service Life in Handling Sulfuric Acid

Alloy has high nickel content, and high percentage of chromium

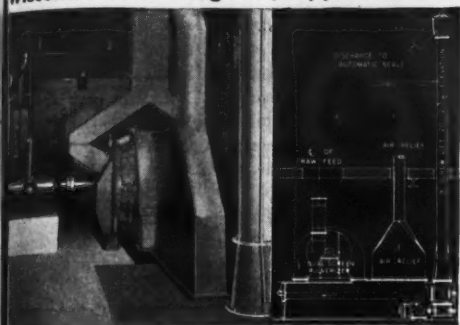
Uses — Corrosion resistant alloys are employed in the construction of these valves for broad application in the handling of corrosive materials. Valves made of Alloy 20 have resistance to hot or cold sulfuric acid, mixed nitric sulfuric acid, hot acetic acid or acetic anhydride vapors, high strength sodium hydroxide and other strong caustics, sulfonated fats and oils, weak chlorides and bleaching solutions. Other services include manufacturers of synthetic rubber, high octane gasoline, fertilizers, plastics and explosives.

Features — Because the body and all other parts of the valves in contact with corrosive solutions are made of this

CHEMICAL PREVIEW

How "HAMMOND" Screw-Lift

solved a difficult elevating problem for Wisconsin Rendering Co., Appleton, Wis.



The "C" 9-inch Screw-Lift Handling Meat Scrap and Tankage Material at 10 tons per hour from Prater Pulverizer Company's Dual Screen Pulverizer to Automatic Scale.

The "Hammond" Screw-Lift elevates free-flowing bulk materials to any practical height. Its construction is patented, the result of many years of research to perfect a simple and efficient means of elevating materials that are difficult to handle. There is no possibility of choking, no deflection, no noise. Everything is enclosed — Dust-tight — Moisture-proof — Safe.

— Sanitary — Compact — Accessible. Standard units available for capacities of 75, 300, 1000 or 2500 cu. ft. per hour. Drives to suit conditions.

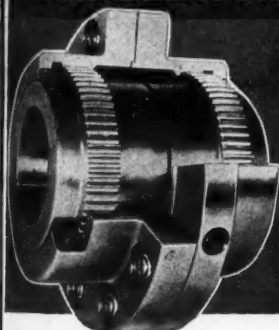
Write for form M-500-2 illustrating available types which we may arrange to suit your conditions, and supply quotations.

Type "C" Screw-Lift with bottom drive. Five other types available.



When inquiring specify CP A5220 — see handy form pages 2-3

Now you can use **SMALLER** sized couplings



WITH THE NEW "Series A" **WALDRON COUPLING**

Write for Copy of This Catalog 57



Its larger maximum bore permits use of smaller sizes for greater accuracy and economy. Requires less shaft extension. Provides neater, more compact job and retains all Waldron design refinements. Available in all popular types.

JOHN WALDRON CORP.
Main Office and Works
New Brunswick, New Jersey
COUPLINGS

When inquiring specify CP A5221 — see handy form pages 2-3

Production

alloy, valves open freely or close pressure tight without the use of wrenches or cheaters even after long periods of inactivity. These valves have excellent inherent resistance to corrosion and thermal shock and good mechanical qualities. They may be used under operating conditions where experience indicates cast iron or semi-steel valves and cocks should not be recommended. Alloy stem and stuffing box assembly, designed for severe service, require minimum attention under conditions where less resistant materials might fail.

Description — The composition of Alloyco-20 was developed to secure a well-balanced, austenitic alloy with good physical properties, ready machinability, and a high order of corrosion resistance, especially to sulfuric acid. The unusually high nickel content permits the alloy to contain substantial amounts of molybdenum and copper, both of which are vitally essential for restraining sulfuric acid attack. The high percentage of chromium provides adequate resistance to oxidizing media and assures satisfactory application in most processes where mixed acids are handled. It is an induction furnace product, annealed and quenched in order to place all carbides in solid solution which assures good resistance to grain boundary attack.

A folder describing the alloy also shows a number of valve designs and sizes. Included is a chart which reveals the resistance of the alloy to boiling sulfuric acid and at 80° C. Corrosion rate is shown in inches per year at various concentrations. Complete details are available on request. Ask for Technical Bulletin No. 2.

ALLOY STEEL PRODUCTS CO., INC., Dept. CP, Linden, N. J.

When inquiring specify CP A5222 — see handy form pages 2-3

Internal Tank Valve Protects Contents of Liquid Storage Tank

For manual operation or automatic operation by a fusible plug prevents contents from feeding fire

Uses — Internal tank valves are used on liquid storage tanks and safeguard contents against "run off" in the event of line breakage.

Features — They permit the flow to be shut off to make repairs or alterations in the line, and can be closed either manually or automatically through the melting of the fusible plug — to prevent the tank contents from feeding a fire.

Description — The valve is mounted on a saddle, which is welded to the tank shell. Turning the hand wheel to the left forces the valve rod downward. This actuates the bell crank, pushing the valve inward, putting the spring under compression — and permitting the fluid to pass outward. Reversing the hand wheel releases pressure on the spring, which reseats the valve, stopping the flow. The fusible plug, furnished when desired, melts at critical temperature, releasing the valve rod and cutting off the flow automatically in case of fire. The valves have steel bodies, valve rods and bell cranks. Furnished with bronze or stainless steel trim, with or without the fusible plug. 4", 6", 8" and 10" sizes are standard. Complete information on request.

JOHNSTON & JENNINGS CO., Dept. CP, 877 Addison Ave., Cleveland 14, Ohio.

When inquiring specify CP A5223 — see handy form pages 2-3

Mixing and Blending Fine Printing Inks



Blending printing ink in the plant of Fuch & Lang Mfg. Co. Div. of General Printing Ink Corporation, Rutherford, N. J.

do it the Exact Weight Way..

Those beautiful color pages in the magazines are no hit or miss affairs. Their uniformity, in millions of impressions, is the result of one of the most careful, accurate weighing operations in all industry. For many years the finest printing inks in America have been compounded and blended on EXACT WEIGHT Scales to assure that never failing uniformity. No operation in the chemical industry requires more precision from the right equipment and EXACT WEIGHT has been doing the task a long time. If you blend for color write for details today.



EXACT WEIGHT Scale Model No. 706 — End tower construction, short platform fall, fraction-ounce dials. Ideal for table use in precision operations in all chemical formula work. Dial markings to specification — Capacity to 27 lbs.

INDUSTRIAL PRECISION
Exact Weight Scales
THE EXACT WEIGHT SCALE COMPANY

31 W. Fifth Ave., Columbus 8, Ohio
Dept. E, 783 Yonge St., Toronto, Canada

When inquiring specify CP A5224 — see handy form pages 2-3

*How much is waste
costing in YOUR plant?*

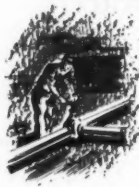
Here's how you can reduce it with

BECKMAN pH CONTROL

In industry after industry Beckman pH Control is reducing costs, minimizing waste, saving time and greatly increasing production efficiencies. Have you investigated what this amazing new profit tool can do in your plant? *Wherever there's water, there's pH.* So if you use water or water solutions of any kind... whether in pulps, liquids, or semi-solids—in process solutions, waste disposal or any other way... chances are that Beckman pH Control can help you do the job better—for less. Here, for example, is how others are slicing costs with Beckman equipment...



SAVING CHEMICALS: By Beckman-controlling processes where chemicals are used, operations can be controlled so closely that overdosage and excess use of chemicals can be practically eliminated. Not only does this cut chemical costs, but it also assures more uniform processing, more accurate production control and greater plant efficiency.



REDUCING CORROSION: More and more plants are discovering the many advantages of reducing corrosion with Beckman pH Control. By Beckman controlling-process operations, these operators are able to regulate acidity and alkalinity—and thus neutralize excessively corrosive solutions before they damage costly plant equipment.



MINIMIZING REJECTS: Beckman pH Control is also making important savings by assuring more uniform quality of production. In many operations only a small change in pH makes a great difference in operation of the processing solutions. By Beckman-controlling the solutions, run after run is processed with identical quality, thus reducing rejects, cutting production costs and making greater savings in over-all efficiency.



SAVING TIME: Just as heat can frequently speed up chemical processes, so proper pH control can often save on processing time. Here again, even a relatively small saving on each production run quickly builds up to tremendous over-all savings in labor and plant overhead.

WHEREVER THERE'S WATER, THERE'S pH!

Let our engineering staff study your particular pH problem and make recommendations on the type of equipment best suited to your requirements. No obligation, of course.

For helpful information on pH control, send for this free booklet "What Every Executive Should Know About pH!"

BECKMAN INSTRUMENTS • NATIONAL TECHNICAL LABORATORIES
SOUTH PASADENA 11 CALIFORNIA

BECKMAN

INSTRUMENTS CONTROL MODERN INDUSTRIES



When inquiring specify CP A5225... see information request blank, pgs. 2-3

Production

Centrifugal Pumps

Construction features give low operating costs
Bulletin C-945 covers horizontal split case, multi-stage high pressure centrifugal pumps. They may be used with motor, steam turbine or engine drives. Uses include high pressure boiler feeding, high pressure water supply in skyscrapers, hydraulic elevator service etc. Liquids may be handled at from 75 to 500 lbs. per square inch in capacities of 75 to 400 GPM.

Applications are given in some detail with pictures showing general uses of the pumps. Details of construction showing features of the casing, impellers, bronze diaphragms, balancing device, shaft, bearings are included. A detailed half section points out the design features, and a group of selection tables conclude the bulletin. Available on request.

ECONOMY PUMPS INC., Dept. CP, Hamilton, Ohio.

When inquiring specify CP A5226 — see handy form pages 2-3

Hand Truck Has Rubber Tired Ball Bearing Wheels

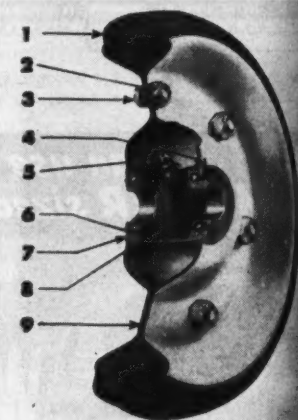
Handles loads to 500 pounds — all welded tubular steel construction

Uses — As a general purpose utility hand truck this equipment is especially suited for handling heavy bags, boxes, crates and cases of many sizes and shapes.

Features — The hand trucks are all-welded, tubular steel construction, of ample size and capacity. Unit features double handles, solid steel nose plate and 8" diameter rubber tired, ball bearing wheels. Box design wheel guards, welded integral with frame and nose plate, contribute great strength to the truck and prevent injury to sacked or boxed material.

Description — A steel spanner tube encases the 5/8" diameter steel wheel axle and is welded to two tubular steel "stair climber" reinforcements, which extend upward to the frame side members. This construction allows easy removal of the axle and wheels since the axle may be pulled up to from the spanner tube and the wheels removed from the box wheel guards. This hand truck is strongly constructed to handle loads well over its rated capacity of five hundred pounds.

Truck and caster wheel is made with demountable, cushion type rubber tires and radial ball bearings. It is available in size 8" diameter by 1 3/4" face; axle sizes 1/2", 5/8", and 3/4" inches with hub length of 2-3/16 inches. It weighs 33 lbs. and has rated capacity of 350 pounds per wheel. The rubber tread is crowned to give easy rolling operation and, due to its shape and method of assembly to wheel, will not creep or work loose under load. Die-formed, steel wheel discs are bolted together with plated bolts of standard



Truck and caster wheel has pressure lubricating fittings

Production

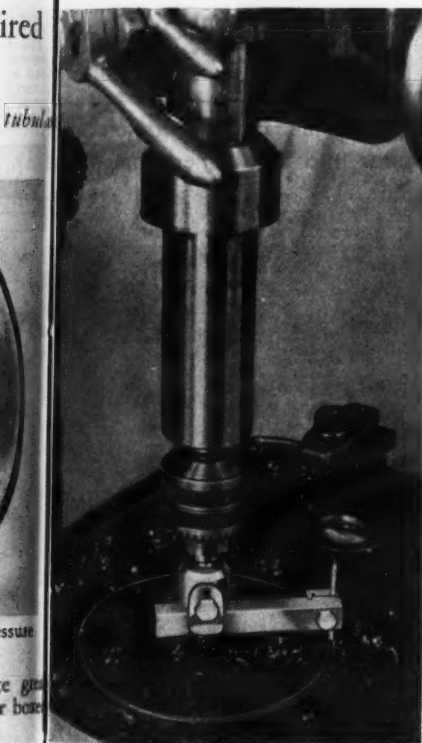
ard size and secured by elastic stop nuts. A hardened steel sleeve is press-fitted over the two bearings when the wheel is assembled, insuring positive alignment and true running operation. Pressure-type lubrication fitting is attached to bearing sleeve and protectively enclosed by the wheel hub. Access to this fitting is provided by an opening in the hub. Alignment of the grease fitting with the opening is maintained by a tab-lock which bears directly on the bearing sleeve.

ARROW PRODUCTS CO., Dept. CP, Grand Rapids 4, Mich.

When inquiring specify CP A5227 — see handy form pages 2-3

Adjustable Circle Cutter Has High Speed Cutting Blade

Cuts holes from 1 7/8" to 8" diam. through 1/4" thick steel or plastics up to 1 1/2" thickness



Adjustable hole cutter fits standard drill press

Uses — Tool quickly cuts smooth large size holes in wood, steel, brass, hard rubber, aluminum, fibre and plastics.

Features — The cutting blade holder permits cutting edge to recede or yield from work while still maintaining steady pressure and feed. Cutting blade is easily resharpened without special tools by grinding on one edge only.

Description — Adjustable circle cutter cuts holes to any diameter from 1 7/8" to 8" through 1/4"

thickness in steel or other tough metals and any thickness up to 1 1/2" in plastics, fibre or wood. (Thickness capacity may be doubled if cut is taken from both sides of material). The tools are designed to operate in any standard drill press, wood-working machine, or suitably mounted spindle machine. It is designed on a new principle which permits easy, yet extremely accurate adjustment and consists of a combination drill and pilot with a high speed cutting blade, adjustable to depth and diameter. The twin-blade holder (fixed 1/2" center) cuts washers, wheels, discs and gaskets in one operation. Complete details are available on request.

BRUNO TOOLS, Dept. CP, Beverly Hills, Calif.

When inquiring specify CP A5228 — see handy form pages 2-3

JULY-AUGUST, 1946



As the white outline indicates, a standard unit of nearly twice the frame size would be required to do the work of Speedaire.

Dollars . . . Space . . . Weight . . . saved with SPEEDAIRE

ON this Oscillating Granulator, product of a well-known Philadelphia machinery builder, Speedaire effects a three-way saving:

1. 16% is saved on the cost of each reducer, as compared to conventional units.
2. Space saved by using Speedaire reduces the overall length and width of the machine base.
3. Use of Speedaire saves 110 pounds weight, reduces shipping cost and handling expense.

Speedaire is Cleveland's new fan-cooled worm-gear speed reducer. Because Speedaire is fan-cooled, it will do more work — and deliver up to double the horsepower of standard worm units of equal frame size, at usual motor speeds. Speedaire can be installed economically on many applications where other types have been used heretofore — giving you the advantages of a compact right-angle drive. Of course, Speedaire gives the same long, trouble-free service characteristic of all Clevelands.

Catalog 300 describes Speedaire — enables you to figure quickly the proper sizes for your equipment. Send for a copy. The Cleveland Worm & Gear Company, 3257 East 80th Street, Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers Limited.



CLEVELAND
Worm Gear
Speed Reducers

When inquiring specify CP A5229 . . . see information request blank, pgs. 2-3

Production

Fan is Corrosion Resistant

Constructed of monel metal

Uses — Suitable for exhaust, ventilation, and cooling applications where corrosive or damp atmospheres are encountered.

Features — Guide vanes on the inlet side of the fan reduce the tendency of the air to corkscrew with the rotation of the blades.

Description — Made in three to five foot diameters, the fan is of the axial-flow ventilating type. A high slip, slow speed direct drive motor, equipped with permanently greased and sealed ball bearings makes it possible to mount the fan in any position. The motor is an 18 pole, 375 R.P.M., 220 Volt, single phase or 220-440 Volt, three phase, with an input of 700 Watts. The motor is internally cooled by circulating air within the hub of the fan without drawing in outside air that might be contaminated. The blade tips revolve within a ring that reduces tip losses. The large hub eliminates that portion of the blade that has a low peripheral speed and thereby voids the possibility of a backflow of air through the center of the fan.

THE MOORE CO., Dept. CP, 544 Westport Road, Kansas City 2, Mo.

When inquiring specify CP A5230
— see handy form pages 2-3

★

"Sealol" Seals Leaking Rotating Shafts

May be installed on new or existing equipment — easily installed

Uses — Device is designed for use on rotating shafts to seal off leaks and to exclude foreign material.

Features — Unit seals mechanically — no packing to replace — no nuts to adjust — does not score shaft.

Description — Seal is packaged as a complete unit — no skill or special tools are required for installation. It slides easily into position on the shaft and is locked in place with two set screws. The only relative movement is at the lapped faces. Shaft run-out does not affect performance of the seal. Entire seal is of non-corrosive construction. Sealing material employed — resists oil, heat, and corrosion. For shaft sizes from 1/2" to 1". May be used on original equipment or replacement. Bulletin is available giving more details and simple directions to install.

SEALOL CORP., Dept. CP, Providence 5, R. I.

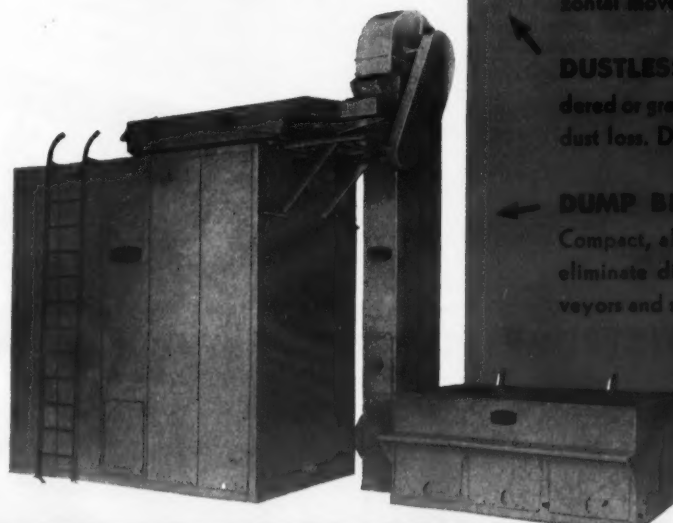
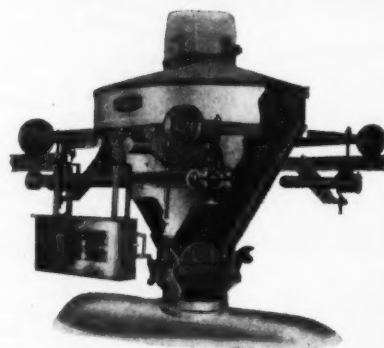
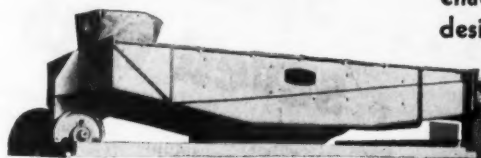
When inquiring specify CP A5231
— see handy form pages 2-3

INCREASED PRODUCTION
TROUBLE-FREE OPERATION
LOWER COSTS

...with **READCO**
PROCESSING
EQUIPMENT

Engineered for Greater Efficiency . . Designed to Meet Your Exact Needs

YOUR KNOWLEDGE of the job to be done plus OUR KNOWLEDGE of processing machinery will provide you with better, more efficient material handling, Mixing and Blending Equipment for your processing operation. Take advantage of READCO's 32 years of accumulated experience which enables us to interpret projected processes into modern equipment designed for their practical accomplishment.



MATERIAL HANDLING EQUIPMENT

Material-Handling systems were pioneered by READCO. Our special study of material-handling problems have been responsible for many developments which are today accepted as standard. READCO systems for efficient, controlled movement of powdered or granular material thru all steps in any case whether continuous or batch operation.

VIBRATING SIFTERS: For efficient sieving and aerating of powdered and granular materials. Removable screen extends full length of sifter. Thorough sieving is accomplished by the combined vertical rotating and horizontal movement of unit.

DUSTLESS WEIGH HOPPERS: Can be furnished for weighing powdered or granular substances. A patented dust-controlling mechanism eliminates dust loss. Designed for either stationary or trolley-mounted operation.

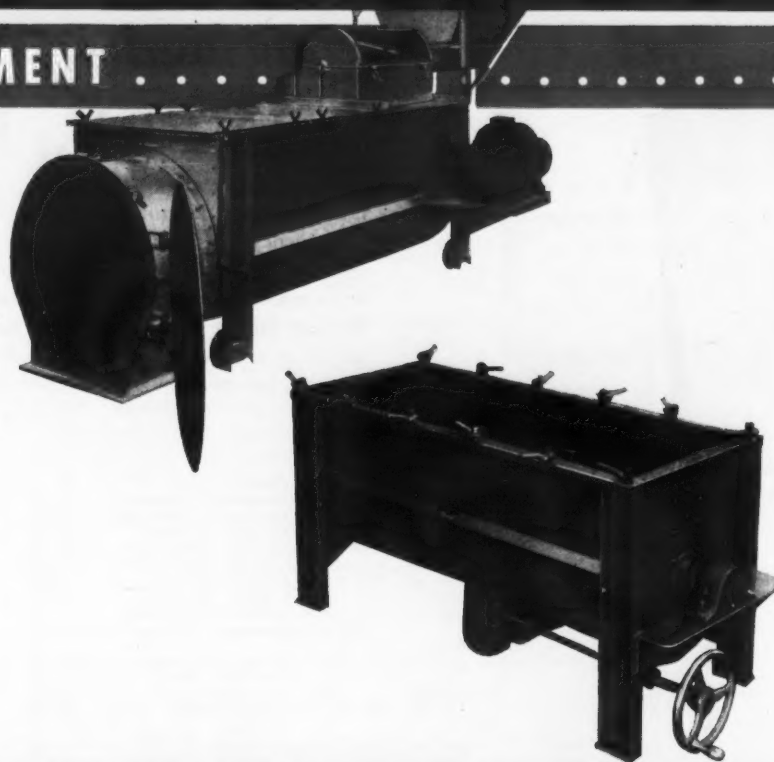
DUMP BINS, ELEVATORS, STORAGE BINS, CONVEYORS: Compact, all metal construction to meet your exact requirements. Flush joints eliminate dirt traps. Welded bases assure perfect alignment. Screw type conveyors and screw or bucket type elevators can be furnished for capacity design.

BLENDING EQUIPMENT

READCO Blenders are engineered to give you maximum blending efficiency.

Note these features:

- ▶ Agitator shaft is mounted in outboard anti-friction bearings.
- ▶ Shaft packing glands are built independent of bearings.
- ▶ Carefully designed counter flow agitator prevents build-up of material at either end of shaft.
- ▶ Slotted end plates permit agitator to be removed vertically from blender.
- ▶ Blenders can be equipped with the usual mulling type agitator or ribbon, trowel or paddle agitators as desired.
- ▶ Temperature control jackets and spray nozzles can be furnished if needed in your processing methods.

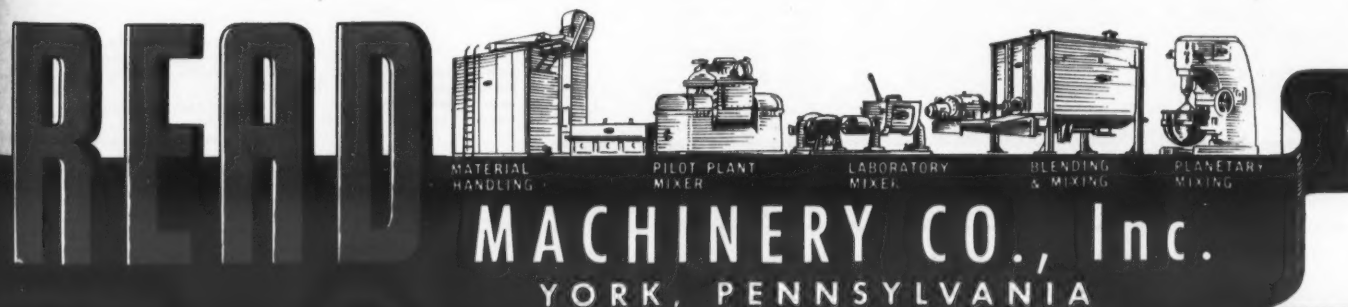


YOU GET THESE 5 BENEFITS WITH READCO

- 1 **ENGINEERING FOR THE JOB:** Designed and built by engineers and mechanics who are thoroughly skilled in the requirements of all types of processing equipment and who are willing and anxious to coordinate your ideas to fulfill your process needs.
- 2 **MORE UNIFORM PRODUCT:** Exclusive READCO designed automatic feeder devices, accurate weighing mechanisms and cut-off gates assure you of easier control of product uniformity.
- 3 **TROUBLE-FREE OPERATION:** Rugged, compact READCO design cuts maintenance costs to a minimum.
- 4 **INCREASED PRODUCTION:** READCO equipment is designed for straight-line handling from ingredient storehouse through manufacturing process—result is more efficient production.
- 5 **PROVEN EFFICIENCY:** Hundreds of the largest chemical processing companies in the United States and the world are satisfied users of READCO processing equipment.



TODAY—more than ever—you need efficient READCO material-handling, blending and mixing equipment. READCO produces an almost limitless variety of standard and special chemical processing equipment, each developed for a specific purpose. See your READCO representative TODAY. Write for our latest catalog—a "must" for your equipment library.



Production

Spur Curve Permits Selective Sorting

Unit has 4 foot radius and spur curve turns 90 degrees

Uses — "Selecting spur curve" allows a choice of directing flow of materials either straight ahead or around the spur curve running at right angles to the main line of a conveyor system.

Features — Device permits packages containing different commodities to be sorted and routed to designated storage area or to loading docks for shipment.

Description — Action of the spur curve might be compared to the railroad term, "throwing the switch," which changes direction of travel from one line to another. The spur curve switch control is a manually operated lever — one on either side of the curve for convenience of the operator — which actuates a lever-and-cam mechanism to raise a steel switch plate on which is positioned a set of independently mounted conveyor wheels. With the switch in the "up" position the independently mounted wheels are projected above the level of the wheels on the curve, allowing the packages to roll on the main line. Swinging the operating lever "down" lowers the switch plate wheels below the level of the curve wheels and diverts the load around the curve to the spur line. The switching mechanism of the curve is of simple, rugged design and positive fool-proof action, and the 12-gauge steel frame is welded to form a strong and rigid unit. Manufactured in two standard widths, 12 inches and 18 inches, it is available in either left hand or right hand styles, and may be supported on adjustable stands similar to those used on straight sections. Unit has a 4 foot radius, the spur curve turns 90 degrees. A complete set of adjustable guard rails is furnished as standard equipment. Length and width dimensions of the spur curve both are 49 inches. Attachment to conveyor sections is effected by a universal coupler, which fits all couplings on straight sections. Weight of the entire unit in the 12 inch standard width is 152 pounds. Further detailed information the spur curve and its application to conveyor installations may be had by writing.

RAPIDS STANDARD CO., Dept. CP,
342 Peoples National Bank Bldg., Grand
Rapids 2, Mich.

When inquiring specify CP A5232
— see handy form pages 2-3

For more information on prod-
uct at left, specify CP A5233
... see information request
blank between pages 2-3.

and MATERIALS

Aluminum	123	Static Control Material	45
Jacketed	54	Steel, Stainless	68, 114
Flow Data	93	Steel, Stainless-clad	108
Glass	23	Stickers, Peelable	50
Plastic	118	Stitcher, Carton	104
Stainless Steel	58	Stitching Machine	125
Stitching Wire	125	Stitching Wire	125
Stoneware	34, 78	Stoneware, Chemical	78
Strainers	92, 104	Storage Tanks	12
Strapping, Steel	57, 56	Structural Shapes, Aluminum	123
Sulfides	51	Sulfur Dioxide, Liquid	60
Surface-Active Agent	49	Switches, Control	94
Switches, Snap	105	Syntergent K	61
T			
Tanks, Heated Calibration	102		
Tanks, Stainless Steel	16		
Tanks, Storage	12		
Tester, Moisture	22		
Textile Treatments	57		
Thermometers	22, 24, 28, 31, 32, 41		
Thermometers, Dial	28		
Thermostats	23		
Threaders, Pipe	43, 105		
Timer, Synchronous	40		
Transformers	21		
Transmitters, Differential	21		
Traps, Air	66, 102		
Traps, Steam	17, 62, 77, 84		
Treads, Steel	102, 110		
Trucks, Barrel	74, 84		
Trucks, Barrel & Drum	74		
Trucks, Fire	116		
Trucks, Floor	66		
Trucks, Fork	16		
Trucks, Hand	128		
Trucks, Industrial	71, 72, 133		
Trucks, Lift	7, 68, 77		
Tubes, Aluminum	111		
Tubing, Koroseal	92		
Turrets, Gear	92		
V			
Valves, Air-operated	16, 118		
Valves, Butterfly	54		
Valves, Control	27, 29		
Valves, Diaphragm	30, 42		
Valves, Motorized	70		
Valves, Packless	16		
Valves, Plug	121		
Valves, Pressure & Vacuum	79		
Valves, Pressure Reducing	26		
Valves, Proportioning	24		
Valves, Refrigerant	94		
Valves, Recirculating	22		
Valves, Relief	88, 112		
Valves, Safety	88		
Valves, Shut-off	22, 88		
Valves, Solenoid	36		
Valves, Stainless Steel	74, 126		
Valves, Steel	71		
Valves, Tank	127		
Valves, Thermostatic	89		
Valves, 3-Way	97		
Valves, Vent	79		
V-Belt Drives	95		
Ventilators, Roof	76		
Venting Equipment	79		
Vessels, Corrosive Handling	92		
Vinyl Acetate	44		
Viscosimeters	29		
Vises, Pipe	104		
Voltmeters	80		
W			
Water Conditioning	86		
Water Treatment	34, 91		
Water Unit, Chilled	35		
Wattmeters	80		
Waxes	48, 50, 58		
Waxes, Microcrystalline	50		
Welded Products	77		
Wheels, Industrial	57		
Windows, Insulated-twin	8		
Wire Cloth	85		

Amazing New Postwar Transporter Lifts Loads Faster... Moves Loads Easier!

Adds New Efficiency, Longer Life to Miracle Electric Truck

Yes, you get more—much more in the amazing NEW, POSTWAR TRANSPORTER—the miracle electric truck long famed for cutting handling costs in half and taking the work out of every material moving job.

Astounding new money, time and work saving features have been added. Developments that lift loads faster, move them easier, give longer life and greater efficiency to a unit already noted for energy-saving performance.

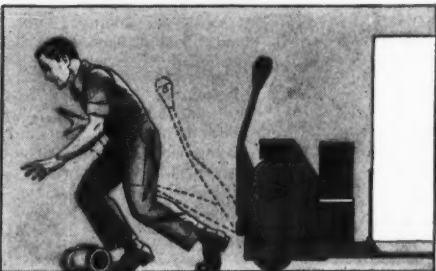
With practically everything new but the hardware, the features below only highlight what you will get in the 1946 Transporter. Send the coupon. Get *all* the facts, before you decide on any motorized hand truck.

EASY TO GET AT POWER UNIT



Changes in design have been made, so that all parts of the power unit are easily accessible. The wiring system has been simplified, and component parts compactly placed where they can be reached easily for lubrication, and inspection.

NEW SAFETY BRAKE



Complete "dead-man" control is assured by a double shoe external contracting type larger diameter brake, which provides four to five times more braking effort. This gives you a Positive Mechanical Brake more efficient and safer the instant control handle is released to upright position.

Double-Pitch Reduction Chain Drive Prolongs life of unit.

New Magnetic Contactor Utilizes Silver Alloy Tips to give ten times more life.

Carbon Brushes in Commutator Type Collector Ring Replace Copper Fingers to eliminate lubrication, increase wearing quality.

Approved by Underwriters' Laboratories, Inc.



1 STROKE CONTACTS SKID

2 MORE STROKES LIFT LOAD

YOU MOVE WITH AMAZING

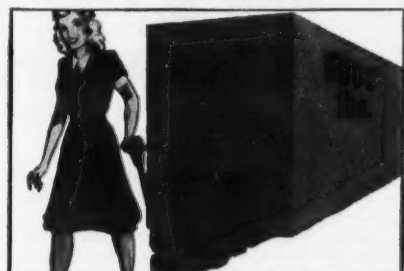
"TOUCH-OF-YOUR-THUMB" EASE, says... "MUSCLE MIKE"

The new 3-second Lift Pedal contains two pistons or cylinders, the high pressure (low speed) cylinder being housed inside the low pressure (high speed) piston. Both cylinders are actuated by the cam when the foot pedal is depressed. One stroke of the foot pedal is all that is required to engage skid.

When load resistance is encountered, the fluid from the larger or low pressure cylinder by-passes back into the reservoir, and the high pressure cylinder is employed to raise the load. So the first stroke of the foot pedal engages the load, and two more strokes raise the load sufficiently to move.

FOOT PEDAL HINGES BACK FOR SHORTER TURNING RADIUS

To provide a shorter turning radius, the foot pedal is hinged back when not in use for lifting.



AUTOMATIC TRANSPORTATION COMPANY

Div. of The Yale & Towne Mfg. Co.

41 West 87th St., Dept. K, Chicago 20, Illinois

Please mail me without cost or obligation, complete facts about the NEW Postwar TRANSPORTER. () Have an A. T. C. Specialist call and survey my material handling costs.

Company Name.....

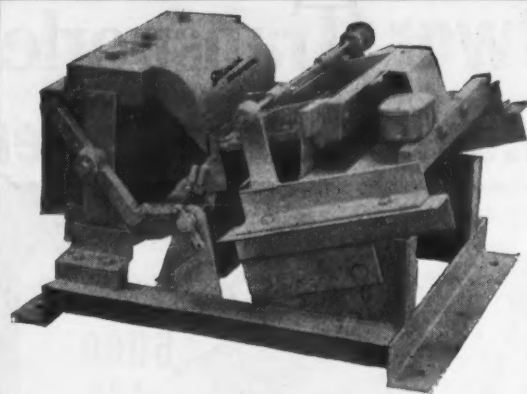
By..... Position.....

Street Address.....

City..... State.....

LOOK TO THE LEADER FOR ALL THAT'S NEW

When inquiring specify CP A5235 . . . see information request blank, pgs. 2-3



If you have this tough problem, Stearns Magnetic Type "KB" Separators will help you smooth out production troubles, lower your costs.

Getting Fine Iron out of POWDERED MATERIAL working parts to get out of order . . . unified push-button electrical control, with rheostats for regulating vibrator feed and magnetic field.

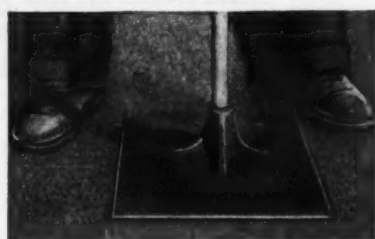
For batch or continuous operation, this powerful deflector type separator offers a deep, intensive magnetic field, is small, compact, rugged, economical, automatic, fool-proof, trouble free, no

Get our advice on the fine iron problem.

Stearns Magnetic Manufacturing Co.
642 S. 28th St.,
Milwaukee 4 Wis.
Clutches—Brakes—Magnets

When inquiring specify CP A5236—see handy form pages 2-3

**TRY
IT!**



NEW PLASTIC FLOOR PATCH SETS INSTANTLY

Tamp! Truck Over! No Wait for Setting!

Flexrock offers a new plastic repair material which is ready for traffic almost the moment it's put down. There is no waiting. Simply shovel INSTANT-USE into the hole or rut—tamp—and your floor is restored to solid smoothness. Tough INSTANT-USE bonds tight to old concrete, makes long-lasting heavy duty patch. Withstands extreme loads. Keep a drum on hand for emergencies. Immediate shipment.

**REQUEST DESCRIPTIVE FOLDER
and details of FREE TRIAL OFFER**



INSTANT-USE

FLEXROCK COMPANY

3611 Filbert St., Philadelphia 4, Pa.

Please send me complete INSTANT-USE information and details of FREE TRIAL OFFER—no obligation.

Name _____
Company _____
Address _____



When inquiring specify CP A5237—see handy form pages 2-3

Advertisers in This Issue

A	
Abbe Engineering Co.	50
Acme Steel Company	37, 125
Air Reduction Sales Co.	101
Airetool Mfg. Co.	122
Ajax Flexible Coupling Co.	120
Alberene Stone Corp.	34
Allen-Sherman-Hoff Co.	84
Allis-Chalmers Mfg. Co.	64
Alloy Mfg. Company	122
Alloy Steel Products Co.	74
Aluminum Co. of America	123
Alvey-Ferguson Company	4
American Air Filter Co.	132
American Mat Corp.	118
American Monorail Co.	106
Amercoat Div., American Pipe & Construction Co.	52
American Tool & Machine Co.	113
Amersil Company	107
Anderson Co., V. D.	77
Ansil Chemical Company	60
Anti-Corrosive Metal Products Co.	65
Armstrong Machine Works	84
Associated Bag & Apron Co.	109
Atlas Foundry Co.	85
Aurora Pump Company	62
Automatic Switch Co.	22
Automatic Temperature Control Co.	70
Automatic Transportation Co.	134
Avery Adhesives Co.	50

B	
Baker-Rauland Co.	71
Barber-Colman Co.	24
Bareco Oil Company	58
Bartlett & Snow Co., C. O.	94
Beach-Russ Co.	76
Black, Sivalls & Bryson	39
Blackmer Pump Co.	71
Blaw-Knox Company	3rd Cover
Blickman, Inc., S.	64
Brookfield Engineering Laboratories	29
Brown Instrument Co.	19
Bruning Co., Inc., Chas.	124
Bufflovak Equipment Div., Blaw-Knox Company	56
Builders-Providence	32
Bump Pump Co.	56
Buxcott Mills	54
B/W Controller Corp.	26

C	
Cambridge Instrument Co.	36
Cardox Corp.	116
Cash Co., A. W.	26
Chase Bag Co.	114
Chemical Publishing Co.	88
Chicago Metal Hose Corp.	105
Chiksan Company	8
Clark Tractor Div., Clark Equipment Company	16
Clayton Mfg. Co.	16
Cleaver-Brooks Co.	88
Cleveland Worm & Gear Co.	129
Clippier Mfg. Company	109
Cochrane Corp.	91
Coe Mfg. Co.	62
Commercial Solvents Corp.	49
Cooper Alloy Foundry Co.	107
Corning Glass Works	23, 34
Crane Company	31

D	
Davis Regulator Co.	36
Despatch Oven Company	31
Diamond Alkali Co.	52
Diamond Chain & Mfg. Co.	42
Dings Magnetic Separator Co.	100
Distributing & Trading Co.	48
Dodge Mfg. Co.	41
Dracco Corp.	115

E	
Eagle-Picher Co.	48
Eastern Engineering Co.	67
Eclipse Air Brush Co.	110
Economy Engineering Co.	104
Edge Moor Iron Works	93
Edmont Mfg. Co.	67
Edward Valves, Inc.	91
Elwell-Parker Electric Co.	72
Emulsol Corp.	44
Erel Engineering Co.	122
Exact Weight Scale Co.	127

F	
Farris Engineering Co.	112
Farval Corp.	98
Filter-Media Corp.	67
Flexrock Company	134
Fostoria Pressed Steel Corp.	70
Foxboro Company	36

G	
Gast Mfg. Company	15
Gates Rubber Co.	95
General Box Co.	63
General Ceramics & Steatite Co.	78
General Chemical Co.	9
General Electric Co.	90, 126
Glycerine Producers' Assn.	59
Goetze Gasket & Packing Co.	14
Grinnell Co., Inc.	30, 72
Groen Mfg. Co.	60

H	
Hamer Oil Tool Co.	121
Hardinge Company, Inc.	89
Harper Co., H. M.	71
Haveg Corp.	118
Haynes Stellite Co.	116
H-B Instrument Co.	22
Hendrick Mfg. Co.	68, 110
Hetherington & Berner	54
Hills-McCanna Co.	42
Hooker Electrochemical Co.	51
Hough Co., Frank G.	54
Hunt Machine Co., Rodney	108
Huppert Co., K. H.	26

I	
Illinois Testing Laboratories	40
Illinois Water Treatment Co.	34
Industrial Oven Engineering Co.	115
Ingersoll-Rand Co.	4
Ingersoll Steel Co.	114
Inland Steel Co.	102
Instant Drying Corp.	124
International Engineering Co.	115
International Nickel Company	4
Ironbound Box & Lumber Co.	66

J	
Jensen Machinery Co.	35
Jerguson Gage & Valve Co.	29
Jessop Steel Co.	108
Johnson Corp.	80, 111
Jones Foundry & Machine Co.	102

K	
Kemp Mfg. Co., C. M.	73
Kewaunee Mfg. Co.	33
Kinney Mfg. Co.	32
Kirk & Blum Mfg. Co.	116
Klein Filter & Mfg. Co.	120
Knight, Maurice A.	112

L	
LaBour Co., Inc.	58
Lammert & Mann Co.	75

L	
Lapp Insulator Co., Chemical Porcelain Div.	87
Lapp Insulator Co., Process Equipment Div.	92
Leavitt Machine Co.	107
Lee Metal Products Co.	62
Leeds & Northrup Co.	4
Leslie Company	104
Lift Trucks, Inc.	7
Lincoln Engineering Co.	75
Lindberg Engineering Co.	25
Link-Belt Company	89
Liquidometer Corp.	30
Logan Engineering Co.	58
Lovejoy Flexible Coupling Co.	48
Ludlow Valve Mfg. Co.	88
Lumenite Electronic Co.	32

M	
Marco Company	82, 83
Marsh Corp., Jas. P.	28
Mason-Neilan Regulator Co.	27
Mayer Corp.	80
Mine Safety Appliances Co.	112
Mitchell & Co., W. K.	122
Mixing Equipment Co.	47
Monsanto Chemical Co.	45
Mortell Co., J. W.	48
Multiplex Mixers	68
Murray Mfg. Co., D. J.	114
Mystic Adhesive Products Co.	52

N	
National Annealing Box Co.	77
National Carbon Co.	98
National Drying Machinery Co.	112
National Starch Products Co.	50
National Technical Laboratories	128
New England Tank & Tower Co.	100
Newark Wire Cloth Co.	85
Niacet Chemicals Co.	44
Niagara Blower Co.	96
Nicholson Co., W. H.	66
Northern Engineering Works	62
Norton Company	50

O	
Oliver United Filters Inc.	10, 11
Owen Bucket Co.	56
Owens-Corning Fiberglas Co.	33

P	
Palmer Company	32
Palo-Myers Inc.	36
Pangborn Corp.	109
Patterson Foundry & Machine Co.	4th Cover
Patterson-Kelley Co.	74
Peerless Pump Co.	72
Persson Co., T. G.	120
Pfaudler Company	3
Pfizer & Co., Chas.	53
Pioneer Rubber Co.	60
Porter Co., H. K.	5
Powers Regulator Company	28
Precision Thermometer & Instrument Company	40
Pressed Steel Tank Co.	120
Proctor & Schwartz, Inc.	97
Proportioners, Inc.	2nd Cover
Pulverizing Machinery Co.	96

Q	
Quaker Oats Co.	63

R	
Rapids-Standard Co.	111
Read Machinery Co.	130, 131
Reliance Electric & Engineering Co.	117
Richmond Mfg. Co.	102
Ric-Wil Company	86
Ridge Tool Co.	43, 104, 105
Robbins & Myers, Inc.	66, 78
Rockwell Co., W. S.	54

S	
Sabin	
St. Regis	
Safety	
Sargent	
Schaub	
Schutte	
Schutz	
Scientific	
Screw	
Seedbu	
Seiberli	
Sheldon	
Shriver	
Signode	
Simplex	
Simplic	
Sly Mfg.	
Sparkle	
Sperry	
Spray	
Spraying	
Sprout	
Square	
Stearns	
Steel In	
Stephen	
Struthers	
Surety	
Surface	
Swartw	
Syntro	

T	
Taber	
Taber	
Tagliab	
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Thermo	
Thomas	
Townmo	
Trent C	
Triangle	

U	
Union	
Union	
Union	
U. S.	
Univers	

V	
Van Ra	
Vapor	
Victor	
Wakefie	
Waldron	
Ward I	
Weather	
West B	
West D	
Western	
Weston	
Wheeler	
Whiting	
Whiting	
Wiegand	
Wyando	

Y	
Yale &	
Yarnall	

Z	
---	--

Roots	
Ross I	
Russell	
Sabin	
St. Reg	
Safety	
Sargent	
Schaub	
Schutte	
Schutz	
Scienti	
Screw	
Seedbu	
Seiberli	
Sheldon	
Shriver	
Signode	
Simplex	
Simplic	
Sly Mfg.	
Sparkle	
Sperry	
Spray	
Spraying	
Sprout	
Square	
Stearns	
Steel In	
Stephen	
Struthers	
Surety	
Surface	
Swartw	
Syntro	
Taber	
Taber	
Tagliab	
able	
Thermo	
Thomas	
Townmo	
Trent C	
Triangle	
Union	
Union	
Union	
U. S.	
Univers	
Van Ra	
Vapor	
Victor	
Wakefie	
Waldron	
Ward I	
Weather	
West B	
West D	
Western	
Weston	
Wheeler	
Whiting	
Whiting	
Wiegand	
Wyando	
Yale &	
Yarnall	

Roots-Connersville Blower Co.
Ross Engineering Corp., J. C.
Russell & Stoll Co.

S

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St. Regis Sales Corp.
Safety Car Heating & Light
Co., Entoleter Div.
Sargent & Co., E. H.
Schaub Engineering Co.
Schutte & Koerting Co.
Schutz-O'Neill Co.
Scientific Glass Apparatus Co.
Screw Conveyor Corp.
Seedburo Equipment Co.
Seiberling Latex Products Co.
Sheldon & Co., E. H.
Shriver & Co., T.
Signode Steel Strapping Co.
Simplex Time Recorder Co.
Simplicity Engineering Co.
Sly Mfg. Co., W. W.
Sparkler Mfg. Co.
Sperry Co., D. R.
Spray Engineering Co.
Spraying Systems Co.
Sprout, Waldron & Co.
Square D Co.
Stearns Magnetic Mfg. Co.
Steel Improvement & Forge Co.
Stephens-Adamson Mfg. Co.
Struthers-Wells Corp.
Surety Rubber Co.
Surface Combustion Corp.
Swartwout Company
Syntron Company

T

Taber Instrument Company
Taber Pump Company
Tagliabue, C. H., Div. of
able Products Corp.
Thermo Electric Co.
Thomas Truck & Caster Co.
Towmotor Corp.
Trent Co., Harold E.
Triangle Package Machinery Co.

U

Union Bay State Chemical Co.
Union Carbide & Carbon Co.
Union Special Machine Co.
U. S. Stoneware Co.
Universal Road Machinery Co.

V

Van Range Co., John
Vapor Recovery Systems Co.
Victor Chemical Works

W

Wakefield Brass Co.
Waldron Corp., John
Ward Leonard Electric Co.
Weatherhead Co.
West Bend Equipment Co.
West Disinfecting Co.
Western Precipitation Corp.
Weston Electrical Instrument
Wheeler Reflector Co.
Whiting Corp., Hydroclone Dis
Whiting Corp., LeVal Filter
Wiegand Co., Edwin L.
Wyandotte Chemicals Corp.

Y

Yale & Towne Mfg. Co.
Yarnall-Waring Co.

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Thermometer History

There is no record of temperatures being measured until Galileo invented his thermometer about 1595. The thermoscope was built in two parts; a small bore tube with a large round bulb at one end and an opening for water or wine. By holding his hand on the bulb, the air inside was warmed and expanded. Then the end of the tube was immersed in the liquid in the dish. As the air cooled or was rewarmed, this liquid rose or fell in the tube. Sealed thermometers, first introduced by members of the Florentine Academy, represented a distinct advance. The effect of change in atmospheric pressure on open tube thermometers was recognized. It was realized that thermometers must have some fixed point, and zero was designed as the point where the column of liquid halted when the thermometer was placed in a cool cellar. Apparently Renaldi in 1694 was one of the first to propose two fixed points, and the first to select the melting point of ice and the boiling point of water. Until Fahrenheit introduced mercury as a thermometric liquid, in 1741, water, wine and alcohol were the usual liquids. (From article by J. J. Moran, Amble Glass Co., Vineland, N. J.).

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